

# Chemist & Druggist

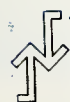
April 6 1974 THE NEWSWEEKLY FOR PHARMACY

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## NPU attacks excess profit allegation

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## Biological availability: a review

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The newsweekly for pharmacy

6 April 1974 Vol. 201 No. 4906

115th year of publication

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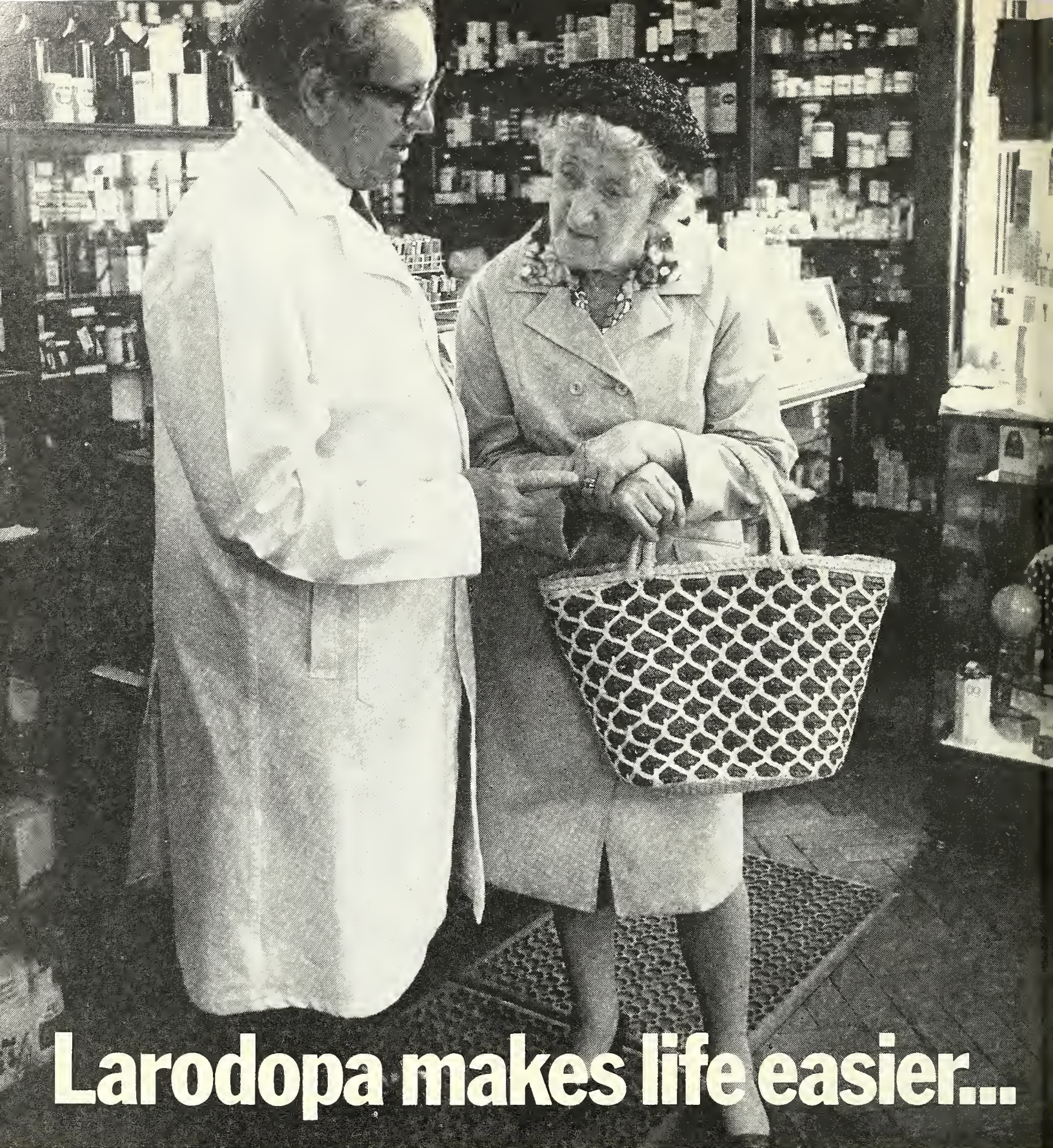
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Mr J. Wright, director NPU, has written  
to the Chancellor about "excessive  
profits" (see p 390)

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# Comment

## There is a time . . .

The Monopolies Commission has decided that it needs an extra two months to report on the proposed Boots Co-House of Fraser merger—this is on top of the five months allowed under the original timetable. Their caution could, of course, be applauded as a safeguard for the public's and shareholders' interests were it not for the fact that the world is not standing still while awaiting the Commission's decision.

There are moments in time and combinations of trading circumstances that provide a favourable climate for mergers; a change in that climate and both parties may find their interests are best served by heading in separate directions.

### Change

But rarely has a period of greater change been in evidence than that since the original bid was made. Britain's balance of payments situation, spiralling world prices and currency fluctuations have been followed by a new Government—which has already come down hard on the distributive trades and has caused havoc on the stock market.

With hindsight, it may yet prove that the Monopolies Commission delays have been in everyone's interest. But it would be luck, not judgment. If there is to be public scrutiny of merger situations, the companies (and the public and shareholders) have a right to

expect that the investigators will act with the same sense of urgency as is required of the participants' own boards and staffs.

## The co-ordinator

April 1, 1974, has been so long heralded that it slipped in almost unnoticed in many quarters. We hope that that bodes well for the future of the NHS, in that the officials were sliding naturally into their new roles, while the patient knows nothing of change until improvements in the service are upon him.

In pharmacy, the area pharmaceutical officers are to be the key to professional integration. Since all the first generation have a hospital orientation, they will need to widen their horizons quickly so that they can represent the profession as a whole to their Boards. If they fall at this first fence, pharmacy will find itself very much an "also ran" in the race for influence and recognition in the new structure.

It will be up to the various area pharmaceutical committees to ensure that "their man" is both active and fully supported by the profession locally. But most of all, the profession's sectional interests must make him aware of their lines of thinking so that his co-ordinating role can be utilised to maximum advantage.

## Post Scripts

exhibition-conference centre in Brighton has been built! The new centre is expected to be ready by autumn 1976, and 54 days have already been booked in the centre.

### 'Harmless' poisons tested?

A rodent exterminator who tasted his poisons to prove that they were harmless probably died as a result.

Press reports say the police suspected that Raymond King, Bodmin, Cornwall, died from thallium poisoning. They treated the case as a murder inquiry until they decided he could have built up a fatal dose of poisons in his body by continually tasting the products in front of his customers.

But it is said that none of the products he sold contained thallium, so tissue and hair samples from his body are now being examined by the Government's Science laboratory at Aldermaston, Berks.

### Seven ages of man

Pursuing Robert Burns' plea: "O wad some Pow'ër the giftie gie us, to see oursels as others see us," Bayer UK Ltd recently asked two outsiders, Rene Cutforth, the writer and traveller, together with photographer Patrick Lichfield, to cast an eye over the group. The result: a 23-pp readable booklet, entitled "The Seven Ages of Man", which has just been published. Starting with a baby, the book-

let takes a cold appraisal of man:—

"Man's worst enemy is himself. He breeds too fast. He eats too much. He pollutes his world. He squanders his resources."

It then ranges from children, adolescence, the acquisitive man, the father, the age of achievement through to old age: to "Sage—or Scrap?" Copies are available free on request from Department A7, Bayer UK Ltd, Bayer House, Richmond, Surrey.

### Top amateur films for Brighton

Arrangements are now being planned for the first British International Amateur Film Festival to be held at Brighton, May 31-June 6, 1975. The main venue for this festival will be the Kingswest Centre, the Rank Organisation's complex on the sea-front where a 500-seat cinema has been booked for the week.

The theme of the festival will be "The Worlds Best Amateur Films" and the organisers hope to attract entries that have already won awards at national and international festivals over the previous two years. Judging over the week will be by an international panel of judges and Lord Lloyd of Hampstead, chairman of the British Film Institute, and Dr Vernon Harrison, president-elect of the Royal Photographic Society, have agreed to serve as patrons.

Interphex, the Eurovision Song Contest, now a film festival, even before the new



Maureen Young is presented with a gift by Mr J. Quill, Shulton regional manager, southern counties. Miss Young is leaving Shulton after working for 10 years in the sales department of Shulton head office where she received thousands of telephoned orders from chemists throughout England.



# NPU rejects implication of 'excessive profits'

The National Pharmaceutical Union Executive has objected strongly to suggestions in the Government's Price Code proposals that retailers are making excessive profits.

In a letter to the Chancellor of the Exchequer, Mr J. Wright, NPU director, says:—"We are disturbed that the Government should apparently have reached the conclusion that the only element in the retail price of commodities responsible for price increases is the profit made by retailers and other distributors. So far as it applied to retail pharmacy we resent the implication that distributors are making excessive profits at the expense of consumers and contrary to the interests of the country as a whole.

"In numerical terms, the vast majority of retail outlets are owned independently of large groups and chains, and it is the proprietors of these smaller businesses who are least able to withstand a cut in gross margin. Many of our members will find their net income cut by half or even more if they are forced to reduce their gross margins. And the effect on the return on the capital they have invested in their businesses will be such that many of them will be better off putting their money in the Post Office Savings Bank.

"For retail pharmacists there will be special problems. On average, our members derive about half their turnover and profit from National Health Service dispensing. The 'gross margin' here is already very tightly controlled by the Government through the dispensing costs inquiries carried out jointly by the Department of Health and Social Security and the Central NHS (Chemist Contractors) Committee. We assume that the new controls will not apply to the dispensing side of the pharmacists' businesses.

## Beyond pharmacists' control

"Of the remainder of our members' turnover perhaps 25 per cent is derived from sales of proprietary medicines. These are, almost without exception, subject to resale price maintenance. The case for RPM was fully argued before the Restrictive Practices Court in 1970. In the light of all the evidence the Court held that medicines are not ordinary articles of commerce and should not be 'pushed' to the public by price promotions. We know of no evidence to suggest that our members are taking any higher profit from proprietary medicines than is reasonable, taking into consideration the wide range of the inventory and the need to stock slow-moving as well as more popular remedies. In any event, the prices, and hence the margins, are fixed by manufacturers and are thus beyond the pharmacists' control. We hope, therefore, that the Government will exclude 'ethical' and proprietary

medicines and medicinal appliances from the new controls."

The NPU letter goes on to say that the re-pricing, or apparent re-pricing of shelf stock has recently given rise to a good deal of publicity, most of it detrimental to the retail trade and, in particular, to some chain food stores. "Much of this publicity has been misconceived and ill-informed. It is not our members' practice, in general, to increase the price of goods until they themselves are required to pay a higher price. Indeed, most of our members rely on one or other of the commercially published trade price lists which are brought up to date weekly. There is often a delay in the dispatch of invoices by wholesalers and manufacturers or the appearance of new prices in the lists resulting in chemists selling 'new' goods at 'old' prices. When the new price is notified, the

retailer naturally feels justified in repricing the goods and, whilst the consumer believes the retailer is profiteering, he is in fact delaying a price rise to the consumer's benefit.

"If this part of the Government's proposals is carried into effect, retailers will often have on their shelves identical items bearing different prices. This will give rise to considerable practical difficulties, for example, in 'shelf-edge pricing', will cause confusion in the minds of customers and may well amount to an offence under S11(2) of the Trade Descriptions Act. No doubt the Government will bear these points in mind."

While recognising the need to restrict avoidable price increases, the letter says that the Government already has sufficient powers through the Price Commission and the Price Code.

"The proposals for changes to the Code are, in our view, unnecessary and discriminate very unfairly against the distributive industry and the smaller retailer. Leaving aside the unfairness of the proposals, we have serious doubts about their practicability. Our members normally do not become aware of the size of their gross margin until their annual accounts are prepared. They simply do not have the time or the means to keep a running profit and loss account; book-keeping and stock-taking difficulties would rule out such a procedure."

## Script charge changes from April 8

Children under 16 and women over 60 years old will not have to pay NHS prescription charges from April 8.

Mrs Barbara Castle, Secretary for Health, said in the Commons last week that the new exemptions were the first step towards the goal of a free health service which the Government would bring about as fast as economics would allow.

It will be some months before new prescription forms can be printed, she said, but in the meantime the newly eligible patients should alter the age on the prescription form before they tick the appropriate box and sign the declaration. Hospitals will be asked to make similar arrangements for out-patients. Anyone in the newly exempted group who has a prepayment certificate will be able to claim a refund for the unexpired period.

Mrs Castle went on to say that family planning supplies prescribed and dispensed at clinics and hospitals will be free of any

charge whatsoever. The cost of not imposing prescription charges in this area will be £700,000 in 1974-75 and £1 million in a full year when the service is developed.

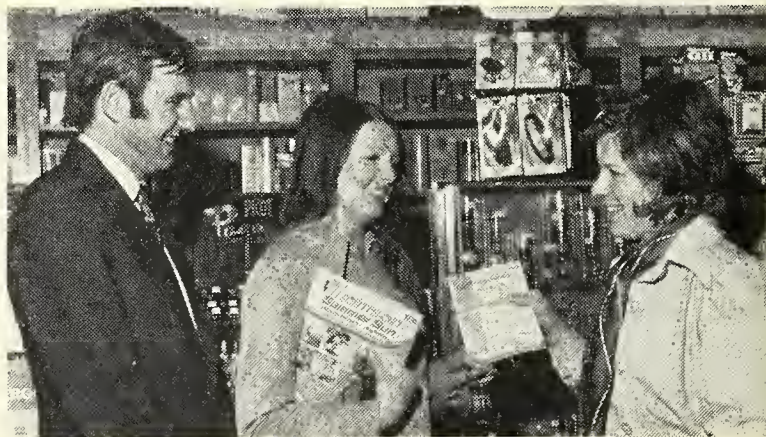
Negotiations with general practitioners and hospital doctors to provide family planning under the NHS in non-medical cases have taken longer than planned. "Much as I want to include GPs in the service, the final decision must depend on what will be the cost."

General practitioners will continue to provide family planning services on the same basis as at present ie they may continue to give advice free but they may charge for issuing private prescriptions in social cases and the patient will pay the pharmacist the full costs.

NHS prescriptions for medical cases will carry the current prescription charges until agreement has been reached with doctors on the conditions under which they will participate in the new service.

June Pagworthy (centre), chemist assistant for Hepworth & Hall, Atherton, Lancs, is presented with a £100 holiday voucher, first prize in a competition sponsored by Laughton & Sons Ltd, makers of Lady Jayne hair products.

Presenting the prize is Brenda Hawkins, public relations executive for Lady Jayne, with Roger Taylor, representative for the north-west region.





# Move to obtain NCT support for rural pharmacy

A motion supporting rural pharmacies is to be debated at the trade conference of the National Chamber of Trade which will be held at Eastbourne from April 29 to May 1.

The motion, tabled by the Parkstone Chamber, is as follows: "That this conference is concerned at the likelihood of a reduction in the number of chemists' shops in areas of low population density and calls on the Department of Health to check this unfortunate tendency by removing the grossly unfair advantages now enjoyed by dispensaries operated by medical practitioners" (call for support—see letters, p 411).

Other motions at the conference include a call from the National Chamber of Trade in Wales for the reintroduction of resale price maintenance "without delay" bearing in mind "the counter-inflationary policies of successive Governments as well as public confusion over variations in the prices of goods in the shops." Lewisham Chamber advocates that the days of holidays around Christmas should be fixed—the motion suggests that Boxing Day should be fixed as the Monday prior to December 26 with "Christmas Tuesday" as the following day, both days to be public holidays. A new 25p coin should be introduced, according to a motion from the Hadleigh, Essex, Chamber.

## Sheffield FPC rejects drug testing scheme

Sheffield Pharmaceutical Contractors Committee has refused to accept the model drug testing scheme until it applies to dispensing doctors. The Sheffield Family Practitioners Committee supported the pharmaceutical committee and has written to the Department of Health and Social Security accordingly.

The Committee agreed that if testing was for the benefit of the patient, it should apply equally to dispensing doctors and hospital outpatient departments. The decision to reject was unanimous, including the Committee's lay and medical members.

## International 'do not drive' symbol for OTCs?

An internationally-agreed symbol to warn people not to drive after taking certain medicines may eventually appear on OTC preparations, in the UK, it was revealed last week.

At a Press conference organised by the British Medical Association, it was said that in some overseas countries, a steering wheel symbol is printed on labels as

a warning not to drive after taking the preparation. The use of such a symbol was currently being discussed at an international level.

Dr John Havard, BMA under secretary, said: "We believe accidents caused by drugs may be increasing, but it is very difficult to collect evidence as to the effect of drugs on accidents." Dr John Clarke, secretary of the Association of Police Surgeons of Great Britain, said OTC cold cures and other preparations containing anti-histamines could lead to driving misbehaviour.

The conference was organised to introduce a report Alcohol, Drugs and Driving, produced by a BMA working party, mainly to help police surgeons and the police.

## Sale of contraceptives in Ireland under licence?

The importation, manufacture or sale, of contraceptives would be prohibited except under a licence from the Ministry of Justice if a Bill presented recently is passed by the Irish Parliament.

The Control of Importation, Sale and Manufacture of Contraceptives Bill 1974 would allow the granting of licences to pharmacists to sell contraceptives to married persons only. The pharmacist would not be under an obligation to determine whether a person was married; the onus would be on the purchaser. The Bill does not mention the keeping of records.

Separate licences would be required for importation, sale or manufacture, and where a purchaser lived too far from a pharmacy, a licence could be granted to a local trader. The position on abortifacients would be maintained, and the Bill would allow the Minister to appoint a committee of up to five experts to decide whether a preparation was an abortifacient or a contraceptive.

## Government to ban stick-on price labels?

Mrs Shirley Williams, Secretary of State for Prices and Consumer Protection, announced this week that she would introduce an amendment to the price code to "restrict the extent to which goods displayed for retail sale can be repriced because the cost of replacement stocks has increased". Answering a Commons question she added that part of the proposal for legislation was to stop the use of stick-on price labels and to have the price marked in indelible ink instead.

Mr A. Williams, Minister of State Department of Prices and Consumer Protection, said he was discussing "the whole

field of operation" of the Fair Trading Act with the Director General of Fair Trading. The Director General was also considering making a reference to the Consumer Protection Advisory Committee with proposals to strengthen the protection given to consumers by the Supply of Goods (Implied Terms) Act. Mr Williams said he was "not convinced" that price variations on branded goods and sales promotion offers were necessarily against the consumer's interest, but he would keep the position under review.

Mr Robert MacLennan, Under-Secretary of State for Prices and Consumer Protection, said he wanted to encourage local authorities to undertake retail price monitoring. He hoped shortly to discuss the matter with the local authority association.

## Scottish election

No ballot was necessary in the Scottish Pharmaceutical Federation executive council election. All members nominated will represent the areas concerned. Results were as follows:

Inverness and Northern area: No nomination. Aberdeen and North-eastern area: C. D. Bain. Dundee and East and central area: R. P. Marr, D. C. C. Wallace, Edinburgh and South-eastern area: A. L. Dunlop, A. Skinner, B. Brown, J. White, Glasgow area: R. Anderson, L. McDougall, J. Stewart, G. Tarbet. South-western area: W. M. Grier, G. D. Rillie.

## Interim restrictions on 'uncontrolled' drugs?

The Department of Health may issue an "interim prescription-only order" for drugs not yet controlled under schedule four of the Poisons Rules. A Department spokesman told *C&D* that such a interim order was "under active consideration".

At present the drugs are recommended for issue on prescription only by the manufacturers but may legally be sold OTC by pharmacists. As well as new products not yet placed in any specific category, the list of drugs to come under the order may include compounds such as glyceryl trinitrate, clonidine, allopurinol and ibuprofen.

The order could come into effect in the early summer and should be in force for about a year before other legislation takes over, according to an article in last week's *General Practitioner*.

□ Another story in the *GP* claims that the decision to ban OTC Sales of phenacetin was prompted by an imminent television play.

The play is to be screened on May 31 as part of Yorkshire television's "Justice" series. It concerns the death of a woman from analgesic nephropathy due to phenacetin and a legal action against the manufacturers by the widower.

A Yorkshire Television spokesman confirmed that the script was shown to the Department of Health and he thought it "very likely" that it had influenced the Department's decision. However, a spokesman for the Department told *C&D* that the phenacetin proposals were announced "because of the accumulation of evidence" and the submission of the play's script was "co-incidental".



# ABPI code of practice defines 'hospitality'

The Association of the British Pharmaceutical Industry has published a revised edition of its Code of Practice which lays down standards of conduct in the marketing of "ethical" medical products. First published in 1958, the latest edition extends its principles and gives additional guidance to manufacturers as a result of past experience gained in its application.

The code now refers specifically to the need to avoid disparaging references in promotion material whether such references relate to opinions held by members of the medical and allied professions or to the products of other manufacturers.

The section relating to hospitality which may be offered to doctors in connection with the promotion of products has been rewritten and now requires observation of the four following principles:

- ☐ Hospitality should always be modest in nature and cost
- ☐ Always secondary to the main purpose of the meeting
- ☐ Should not extend beyond members of the profession
- ☐ Should be appropriate and not out of proportion to the occasion.

The new code incorporates recommendations concerning approaches to doctors in connection with market research whether by a manufacturer or an organisation acting on his behalf. It emphasises, for example, that market research must not be used as a form of disguised sales promotion.

## MP gives his case for safety containers

The present situation on child-resistant containers for medicines is "ludicrous", according to Mr Greville Janner MP.

In an article in the *Sunday Mirror*, Mr Janner said that for over three years he had been campaigning in Parliament for new regulations requiring child-resistant containers to be used "for all substances which are likely to poison children". In his adjournment debate (*C&D*, March 23, p 323) "the new Government gave me a first glimmer of success."

On the question of payment for the containers, Mr Janner said "not unnaturally chemists refuse to meet the cost of these containers out of their own pockets," and parents prepared to buy and pay the extra cost are unable to do so. "Wouldn't you be prepared to pay an extra ½p per prescription to prevent your toddler being poisoned by your pills?" he asked.

Mr Janner claimed that the "palm 'n twist" container or child-resistant top "mass produced in cheap plastic" cost "a fraction of a penny more than the rubbish in which we get many of our present pills and potions." He had accumulated "a

large collection" of child-resistant containers and claimed that "even adults with arthritic hands can open nearly all the containers with ease. But small children are fooled and fooled."

Mr Janner added "I am confident that eventually my campaign for compulsory child-resistant containers will succeed." Meanwhile he called for all dangerous substances to be kept well out of the reach of children preferably locked up.

## Aspirin alone 'rarely causes kidney damage'

Aspirin when prescribed alone rarely it ever causes analgesic nephropathy according to two studies in last week's *British Medical Journal*.

The New Zealand Rheumatism Association Study findings were consistent with the view that there is a risk from APC compounds taken in large quantities and the authors suggest that aspirin may have an additive effect with other analgesics in causing renal damage, although the numbers at risk in this study were small. Aspirin alone caused no damage.

Workers at Royal Victoria Infirmary, Newcastle upon Tyne and Newcastle University Department of Medicine concluded that there is no need to restrict the sale

of aspirin on the basis of nephrotoxicity, following their study of renal function in 14 patients taking large doses for rheumatoid arthritis.

There is still conflicting evidence over the relative importance of various analgesic drugs in producing progressive renal damage, says a leading article in the journal. The imminent restrictions on phenacetin use may settle the dispute: the condition should eventually disappear if it is solely due to chronic poisoning.

## Request for minister for small businesses

The Smaller Businesses Association has asked the Prime Minister to appoint a minister to be solely responsible for privately-owned businesses.

The minister would hold a Cabinet post and would safeguard the interests of small companies of any description particularly with regard to the effect of any Government legislation to be introduced.

The Association has some pharmacists and small pharmaceutical manufacturing companies among its members.

## PATA meeting date

The 78th annual meeting of members of the Proprietary Articles Trade Association will be held on May 9, at the Connaught Rooms, Great Queen Street, London WC2 (Devon Room), at 2 pm. The meeting is open to members of all sections of the Association.

## Chief pharmacist moves

The office of Dr T. D. Whittet, chief pharmacist at the Department of Health, has moved to Room A401, Alexander Fleming House, Elephant and Castle, London SE1 6BY (telephone 01-407 5522, extensions 7381 and 6280).

## Representatives' image: 'All things to all men?'

Today's pharmaceutical representative was expected to be "all things to all men" said Mr D. Godfrey, a director of Wellcome Foundation Ltd, when he addressed a meeting of the industrial section of the Pharmaceutical Society last week. Mr Godfrey said that criticism was sometimes levelled at the companies for not training their representatives sufficiently. The customer whether he be a general practice pharmacist, a hospital pharmacist, a hospital consultant unfairly expected the representative to be a specialist in each field. Mr Godfrey believed the representative should have a full knowledge of his company and their products, and some knowledge also of the marketing area in which he was operating. A great deal of training was given to them to that end.

Speaking on the role of marketing in the pharmaceutical industry and discussing where the pharmacist fits in, he described what the marketing man was or was not in the following terms:

- ☐ Not a scientist but must understand the scientist and his subject;
- ☐ Not a production man, but he must be conversant with the production process and its people;
- ☐ Not a pharmaceutical innovator but he must discuss the developments with experts;

- ☐ Not an advertising agent but he must have an understanding of the art;
- ☐ Not an accountant but he must have a concern for, and an understanding of, the profit and loss account; and
- ☐ Not a doctor but he has to understand the medical mind and the requirements of medicine.

"The marketing man must, therefore, be broad spectrum; the pharmacist too is a broad spectrum individual — with a range of activity very relevant to the pharmaceutical marketing need. His training by virtue of its type and its breadth makes him a suitable person to operate in the marketing area.

"Doctors are sensitive; pharmacists are sensitive, patients are sensitive and governments are sensitive. If we are to operate successfully the special needs of these groups have to met in such a way that their sensitivities are not upset. The marketing man is at the interface with them all. He requires a wide understanding of people and matters technical. It is not essential to be a pharmacist to be a marketing man but it does help a great deal. No matter what type of graduate, it is necessary to graft on to him pharmaceutical marketing expertise. The graft can take most readily on a pharmacist."



# People

**J. W. I. Thomas, JP, BPharm, MPS,** has been Chairman of the Merthyr Tydfil County Borough Magistrates, has been elected as Chairman of the Magistrates for the Mid-Glamorgan N 4 Area.

Featured on the front page of *Crewe Chronicle* weekly newspaper, Cheshire, recently, was pharmacist **Mr David Wallace**, a top football-referee. Mr Wallace is with P. Williams (Chemists) Ltd, Victoria Street, Crewe, has been getting numerous telephone calls at his home inquiring where he is refereeing next.

**E. Hebron** and **Mr G. Knowles**, chairman and secretary respectively of the former Cheshire pharmaceutical Committee, had their long service (23 years) recognised at a dinner at Hartford Hall, Northwich, on March 27. The Committee presented each with a handsome carriage clock, suitably inscribed, in acknowledgement of their work on behalf of fellow pharmacists.

## Deaths

**Obituary:** At Edinburgh Royal Infirmary on March 28, Mr Norman Charles Pyper, 65, of 7 Harelaw Road, Colinton, Edinburgh 13. Mr Pyper, who qualified in 1909, had a pharmacy at 7 Crichton Place, Edinburgh.

# News in brief

A total of 892,593 prescriptions (2,028 forms) were dispensed in North-Ireland during December at a total cost of £920,249.46—an average of £1.0309 per prescription.

Price increases resulting solely from a change in customs or excise duty, car tax and VAT need not be notified to the Price Commission before they are implemented, provided they do not exceed the cash amount of the tax increase.

A list of common names for pesticides, approved by the Pest Control Products Industry Standards Committee for inclusion in BS 1831, is issued on document 74/571 from the British Standards Institution, 2 Park Street, London W1A 2BS.

Pharmaceutical services will not be provided in the proposed health centre at the central Hampstead redevelopment, West End Lane, London NW6. A recent meeting of the Inner London Executive Council was told that there are no adequate pharmaceutical services already in the area.

The Sale of Goods at Maternity and Child Health Clinics (Designation and Licensing) Regulations 1974 (HM Stationery Office SI 1974 no 465, £0.06) provides for exemption from charges on goods sold in such clinics and exempts from charges proprietary milk for babies for whom exemption was made before April 1.

# Topical reflections

BY XRAYSER

## Marketing

In his speech on Care on March 22, Mr Arthur Trotman (managing director of Independent Chemists' Marketing Ltd) said that we lived in a world of change and that he had had to make compromises. Proof of that was forthcoming in that he chose a pharmaceutical group lunch of the Royal Society of Health to discuss questions of a "fast flow of a rationalised range of goods," and the need for a high level of promotional activity.

The theme of the address was, of course, Care, as distinct from just ordinary care. The former is structured to assist independent chemists in the exploitation of combined buying power to gain better buying prices; unification of promotional activity enabling the use of advertising and merchandising services, and development of management services to help pharmacists retail more effectively and efficiently. I have not felt happy from the start with the advertising and marketing policy of the organisation, and Mr Trotman's recent advocacy is far from reassuring.

He said that research showed that the housewife knew the price of 10 or 12 items. "If you cut six of those then she will think most of the stores' 3,000 lines are cut price." It was possible, he said, to build the whole image of a store round 30 or so known value items. Mr Trotman said there was little doubt that a total of four to five thousand membership would be achieved. Are there so many who would want to be associated with a scheme I should have regarded as a form of sharp practice and dubious moral standards, were it not, as Mr Trotman says, that we live in a world of change and have to make compromises? Honest advertising may yet compel ICML to tell the public, in the Press and by showcard in the window, that they only think that 3,000 lines are cut-price, whereas 2,994 of them are not.

## Exemptions

The new Secretary of State for Social Services (Mrs Barbara Castle) has lost no time in amending some of the inconsistencies in prescription charges, and her decision to increase the child age limit to 16 is, in the light of the present school-leaving age, logical, as is the proposal to exempt from payment women who have reached the pensionable age of 60. The latter is particularly welcome, and the Pharmaceutical Society will feel gratified that its unequivocal stand in the matter has met with approval, though there were others who campaigned against the injustice of denying the right to exemption of a section of the community which had paid for its pension rights over the prescribed period.

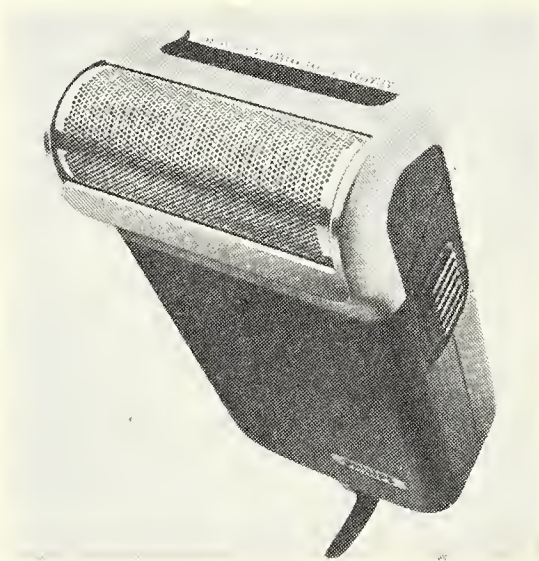
## Commonsense

Pharmacists will be the first to see the commonsense of the proposals, and they will be relieved of unrewarding (and unrewarded) effort in attempting to explain why a woman, no longer working and living on a pension, should have to wait another five years before she qualifies for medicine without tax. Or to smooth the ruffled feathers of a wife of 62 whose husband has just retired—his influenza is free while hers, for another three years, is a luxury. How the attitude could be defended I never could understand, but successive Ministers and Secretaries always managed to find some ingenious excuse for the prolonging of what was, at best, a minor economy at the expense of a comparatively small section of the community who were in no position to wonder at the injustice and the lack of logic.



# Every dealer has a few tough customers

## This big ad. campaign turns them into profits!



Up to now, customers with tough beards had a tough problem—finding a shaver that could get close enough.

Now at last there's a shaver specially for tough beards.

The Philips Foil-Head XTR7.

**Stock up now to meet the big demand generated by whole page advertisements in the Observer Magazine, Daily Telegraph Magazine, Radio Times, Punch, Reader's Digest, Geographical Magazine and Illustrated London News. From April to June 1974.**



# PHILIPS

Simply years ahead.



# New products and packs

## cosmetics and toiletries

### onger in beauty-health market

Following the example of sister subsidiaries in other countries, Bayer Pharmaceuticals UK are now entering the beauty/health market. To start with it is intended to sell a range of suntan products, a self-tanning product and a cosmetic insect repellent product.

The Delial sun tan plan will be available in the UK this summer. Delial is already available and amongst the market leaders in many European countries. There are three forms: Delial sun cream No. 4 (£0.57) which gives maximum protection for the more sensitive skin, Delial sun cream No. 3 (£1.10) for normal skin and Delial sun oil No. 2 (£1.10) for the less sensitive skin.

The factor number indicates that the "tanners" may stay in the sun 2, 3 or 4 times longer than they could without protection.

For the customer who wants a sun tan with protection there is Maxi Braun self-tanning cream (£0.76) or milk (£1.25). An instant tan is obtained within 3 or 4 hours with a protection factor 2.

The Delial sun tan plan is available as a special introductory display offer from your representatives in an attractive display. Six packs each of sun oil, sun cream and sun cream, together with three packs each of Maxi Braun cream and cream, charged through wholesalers £14.82, retail value plus four bonus packs of sun oil and sun cream is £25.15. Additional sales aids including a consumer holiday check list, are also available.

Insect repellants which are cosmetically attractive are unique. Autan, also from Bayer, which is in the form of milk (£0.77) or aerosol spray (£1.04), keeps insects away and because of its pleasant perfume would fill a need in a growing market.

An introductory bonus offer is available to representatives, three Autan spray and eight Autan milk charged through wholesalers at £5.90, together with two Autan milk (Bayer Pharmaceuticals Haywards Health, Sussex RH16 1TP).

### 'complete' tissues range

For the first time, claim Nicholas Products, a "complete" range of impregnated tissues is being introduced to the health market. Savett tissues are available in four different types, with pack colour differentiation but a "family" image.

Savett freshen-up (blue) is for cleansing and refreshing during the day; Savett clean-up (green) is a large tissue for general purposes (also useful as an after-shave); Savett toilet (orange) is for use in the lavatory immediately after the use

of toilet paper (also for baby after nappy changing); Savett intimate (white) for use by men and women in cleansing the genital area.

All the tissues are impregnated with cleansing solutions incorporating a mild antiseptic, and all except the freshen-up version contain an emollient. The solutions are quick drying and discreetly or neutrally perfumed according to type and use.

The tissues are individually packed in foil sachets, ten to each carton (freshen-up, toilet and intimate £0.25; clean-up £0.28). Advertising starts next month, and representatives will be offering chemists introductory terms.

The Savett range was launched in Scandinavia early in 1972 and has already achieved £1m sales (Nicholas Products Ltd, PO Box 17, 225 Bath Road, Slough, Bucks SL1 4AU).

### 'Gatsby look' from Revlon

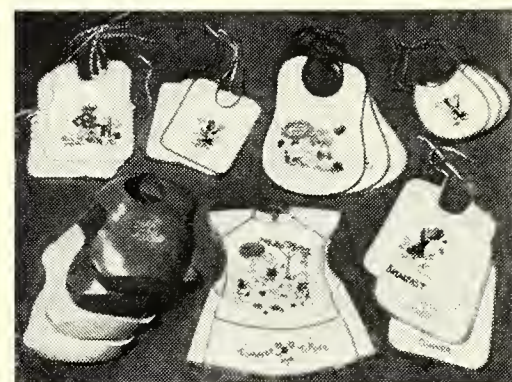
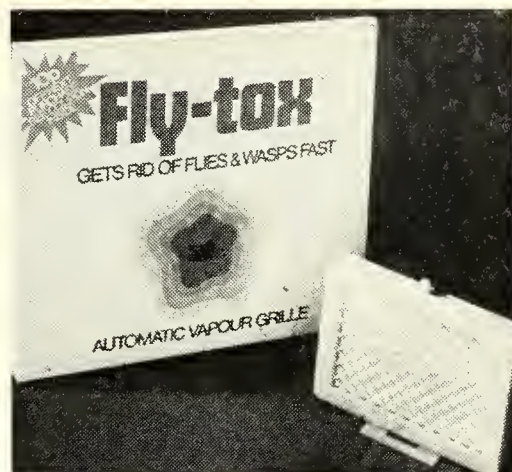
In line with the popularity of the "Gatsby look" of the twenties, Revlon have introduced eight gleamy shades in their reformulated super frost shadows (£0.70), which they feel give a softer, more feminine interpretation of the look. The shades include mint green, deep blue and ginger.

Also from Revlon are Extra Extra Crystallines frosted nail enamels (£0.70) in a choice of ten shades, the formula of which the makers say prevent streaking when applied to the nail (Revlon International Corp, 86 Brook Street, London W1).

## Babycare

### Towelling bibs and aprons

Six towelling bibs and aprons have been added to the Tommee Tippee range. They include a breakfast/lunch/dinner set of three bibs with PVC backing (£0.79); a large apron bib with "crumb-catcher" pocket and safety ties (£0.65); an oval bib (£0.39); and a "dinky bib" for the younger



baby (£0.19). All bibs have attractive motifs and most come in polythene bags with header cards (Jacqueline Sales, division of Jackel & Co Ltd, Kitty Brewster Estate, Blyth, Northumberland NE24 4RG).

## Sundries

### Automatic fly killer

Fly-tox vapour grille (£0.59), an automatic fly-killer suitable for the kitchen or other small rooms, has been produced by Ciba-Geigy. The insect control pad is carried in a grille that can be stood or hung in the room. For larger rooms grilles can be snapped together. The insect repellent is effective for up to six weeks.

To introduce the product, 10p-off coupons, redeemable against all Fly-tox products, will be distributed to 10 million houses and there is a 10p-off next purchase voucher in all packs of the vapour grille. There will also be a national television campaign for the product throughout June (Ciba-Geigy (UK) Ltd, Simons-way, Manchester M225LB).

Continued on p 398





# Every woman who enters your shop is a target for Philips Beauty Care.

Whether she's leg-conscious...  
or hair-conscious...  
or tan-conscious.



**PHILIPS**  
Simply years ahead.



# Hard-selling advertising to help you sell Ladyshaves, Hair Driers, Curlers, Sun Lamps & Health Lamps.



## Ladyshave on TV.

It sells strongly. It's memorable. And it reaches 80% of all women viewers in a heavy-impact 5-week burst. The Ladyshave commercial coincides with the beginning of the holiday season. Just the time when women start thinking about bikinis... and about how to get rid of unwanted hair.



## Big Press Campaign for Sun Lamps.

You'll see this strong campaign in Radio Times, TV Times, Weekend, Punch and Reader's Digest. So will three-quarters of all persons in the UK. It starts just before the holiday season gets under way. It makes the powerful point that no woman wants to go on the beach as a paleface when everyone else has a beautiful tan.



## Health Lamps in National Newspapers.

We've run this one before. It works. So we've been running it again this Spring 86% of all adults will see it — over six times each, on average. That means 228,516,000 total impacts! It will make a big impact on your sales, too.



## Hair Care throughout the Women's Press.

A week after the sun-lamp campaign opens, we also hit off with a hair-care campaign in major women's weeklies and monthlies. It sells strongly on the big plus points of Philips Hair Driers and rollers.

**These Press and TV campaigns are going  
to sell, sell, sell.  
Make sure your stocks can meet the demand.**



## New products

Continued from p 395

### Photographic

#### Portable clearing tank

For convenience in using their new Type 105 film (*C&D*, March 9, p 255) in the laboratory, studio or in the field, Polaroid have introduced a portable negative clearing tank which stores the negatives in the sodium sulphite clearing solution until the user is ready to wash and dry them.

The tank is constructed of durable polyethylene with a snap-on cover and carrying handle. It contains a removable insert with contour slots for eight individual negatives and will accommodate the larger 4 x 5in instant negatives obtainable with Polaroid Type 55 positive/negative Land film in addition to the 3½ x 4½in negatives obtained with the new Type 105 film (Polaroid (UK) Ltd, Rosanne House, Welwyn Garden City, Herts AL8 6TY).

#### Fuji camera and flashgun

A new fully automatic 35mm compact camera and electronic flashgun are the latest Hanimex additions to their UK Fuji range. The camera is the Fujica Ger- (£69.95) which has a smart, compact design and an electronic shutter.

An indicator coupled to the film advance rotates to show when the film is being transported. There is a window in the back of the camera through which the cassette can be seen when a film is inserted.

The flashgun, which can be bought separately, is the Fuji colour Strobo "S" (£13.75). When this is fitted to the accessory shoe on the camera, the flash indicator light is visible through the view finder — a practical advantage resulting from the co-ordinated design of these two items.

The flash exposure is automatically calculated after the operator has set the guide number to the front of the camera, via the coupled range finder (Hanimex (UK) Ltd, Hanimex House, Dorcan, Swindon, SN3 5HW, Wiltshire).

#### Two Hanimex cine cameras

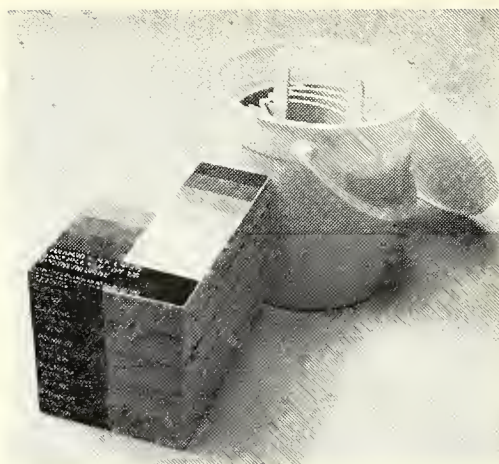
Hanimex have released the first details of their new movie cameras, launched recently at the annual photographic conference in the Canaries.

The two MXL cameras are sturdily designed and built, with a black anodised metal finish covered in leatherette. The cameras have been introduced to take advantage of the recently introduced 160 ASA Super 8 movie film for use in dim light, and make it possible to film indoors without the use of special lighting.

The Loadmatic MXL 121 (£52.75) with its f1.1 lens and a 230° shutter will meet the essential needs of amateur enthusiasts with its simplicity in use, and satisfy demanding viewers with the result.

The second model is the MXL 311 (£103). This is the first zoom lens MXL camera Hanimex are able to supply with a 3X f1.1 power zoom.

Construction and finish of this quality camera is the same as the 121, but with



the added feature of a battery tester, back-light control and footage counter (Hanimex (UK) Ltd, Hanimex House, Dorcan, Swindon, Wiltshire).

### Sundries

#### Brewing aid

Sodastream keg tap (£8.20) is a carbon dioxide dispenser unit from Grey Owl that can be used in conjunction with a three or five gallon plastic beer cask to enable the user to draw off his home-made beer in "professional style". It can also be used to carbonate home brew, or to mix in finings during the making of the beer (Grey Owl, Morley Road, Staple Hill, Bristol).

#### Vacuum mugs and tumblers

Harp Products have introduced a stainless steel, 10oz vacuum tumbler (£3.85), a plastic 8oz tumbler that comes in a choice of colours (£1.94), and a stainless steel, 16oz vacuum beer mug (£5.19) (Harp Products, Riverside House, Carnwarth Road, London SW6 3HS).

## VAT Budget changes

The following details of retail prices, including VAT were received too late for inclusion in the *C&D* price Supplement.

**Allen & Hanburys Ltd.** Allenburys pastilles. 2oz tin £0.19½.

**Ashe Laboratories Ltd.** Simbix. Chocolate malted £0.33; chocolate orange sundae £0.32; chocolate peppermint creams £0.33.

**Bovril Ltd.** Jaffa juice £0.25½.

**Fisons Ltd.** Biscuits. Peppermint creams 3 meal £0.44; chocolate digestive 5 meal £0.44; Vienna wafer 4 meals £0.40½; milk chocolate coated biscuits 12 x 2 £0.17½; plain chocolate coated biscuits 12 x 2 £0.17½; Mulisli bars £0.16½; Chocolate bars, milk £0.20½; plain £0.20½; hazelnut £0.21½; fruit & nut £0.21½; milk wafer £0.43. Chocolate coated peppermint biscuits 12 x 3 £0.18; chocolate coated orange biscuits 12 x 3 £0.18.

**Guest Thos. & Co Ltd.** Sure Shield. Blackcurrant and glycerin pastilles £0.16; glycerin lemon and honey pastilles £0.16.

**Reckitt & Colman** Robinsons baby syrup £0.17½.

**Smith Kendon Ltd.** Skels. Cool Drop £0.11½; diabetic chocolate bar, plain milk, hazelnut £0.12; pastilles £0.28½. Smith Kendon. Spearmint flavour gum £0.05½; fruit flavoured lollipops £0.20; glucose tablets £0.22; blackcurrant & glycerin pastilles 2oz £0.23; honey glycerin & lemon pastilles £0.23.

# Trade News

### Sanitas buy Novara

The Sanitas Group, Stockwell Green, London SW9 9JJ, announce that they have completed arrangements for the acquisition of Novara skin care products from Sales Affiliates Ltd. Novara has recently been distributed by Mennen Ltd, and will now be sold by the Eucryl division of Sanitas.

### Paramol-118

Duncan, Flockhart & Co Ltd, Birkbeck Street, London E2 6LA, say that stock of the 250 pack of Paramol-118 are now exhausted.

### Arlef 100mg colour change

Arlef capsules 100mg manufactured by Parke, Davis and Co, Usk Rd, Pontypool, Mon NP4 8YH, are now in a no 3 size capsule with a flesh opaque body and an orange cap. P-D is printed on the capsule body and cap. The contents of the capsule remain the same.

### Ferromyn capsules credits

Calmic medical division, Temple Hill, Dartford, Kent DA1 5AH, have discontinued Ferromyn capsules, 100. They suggest that some chemists will continue to receive orders for the product; currently stocks should be retained for the time being. Representatives will discuss credit arrangements for stocks for which there is no longer a demand.

### Embazin Premix

Embazin Premix, the anti-coccidiostat from May & Baker Ltd, Dagenham, Essex, is now officially cleared for the control of pasteurella organisms in poultry and game birds. Previously Embazin was indicated for treatment only. The Premix is a feed additive in cereal base, with a dose level of 1oz per cwt in feed for prevention and 4oz per cwt for treatment (25lb, £15.00 trade).

### Polaroid glasses for '74

The summer collection of Polaroid sunglasses is ten "brilliantly coloured" glasses in either plastic or epoxy-resin coated metal with plastic "glare-reducing" lenses that are colour-complemented to the sunglasses frame colour.

Included in the range is model 84 (£3.95) a "unisex" sunglass that comes in either rouge or fume—a golden sunrise shades, and model 4440 (£3.75) an oval shape in either olive green or mushroom beige colours.

The glasses are available from Polaroid (UK) Ltd, Rosanne House, Welwyn Garden City, Herts, from the beginning of May as open stock or as the JB14 pack which consists of two boxes with transparent fronts, each containing five sunglasses plus one free model 8399 per pack.

Continued on p 4



elle

# The Teen Scene Intimate Deodorant.



**elle** is the No. 1 brand in the teenage market –the fun-loving, fast spending 13-18 year olds.

**elle** has super trendy new packs.

**elle** is spending more than ever for 1974 –with whole-page colour ads. in Fabulous 208, Loving, Melanie, Mirabelle, Petticoat, Valentine.

**elle** has exciting promotions throughout the year.

**elle** gives you great bonus terms.

Your Crookes Anestan representative has full details.





# Trade News

Continued from p 398

## Car bingo!

Nicholas Products Ltd, 225 Bath Road, Slough SL1 4AU, makers of Kwells travel sickness remedy, have produced a travel car game — car bingo. Six coloured bingo cards, the squares of which contain a road sign, animal or other items of interest for children to "spot" along the journey, are available from the makers who claim the game "makes fun of every journey".

## Nicholas 'experimental' hours

For an experimental period of eight weeks, Nicholas Laboratories Ltd, are changing their hours of business to 9am-5.30pm (Monday to Thursday) and 9am-4pm (Friday only). Urgent orders outside these times can be dealt with by Ansaphone (Slough 22116) and will be given priority on the next working day.

## Skin care offer

Max Factor Ltd, 16 Old Bond Street, London W1X 4BP, are offering Satin Flow cleansing lotion and Satin moisturiser at a reduced price of £0.60 for the two, a saving of 23p.

## Gillette 'shaver savers'

The Gillette G11 and Techmatic razors are to be featured in special promotional packs selling at £0.69, a saving of at least 30p. The promotion by Gillette Industries Ltd, Great West Road, Isleworth, Middlesex, is aimed to boost sales outside the traditional gift-buying period and there will be an estimated £200,000 television and national Press advertising campaign featuring the "shaver saver" theme breaking April 22 to draw the public's attention to the offer.

## Football promotion

Following the success of the James Bond promotion last year, Richard Hudnut Ltd, Eastleigh, Hants, are featuring a "football special" promotion for the Injector shaving

system. The Schick Injector razor is to be reduced from £0.90 to £0.45 and in addition, there is a free poster offer of England goalkeeper, Peter Shilton plus a supporter's football scarf in the club colours of the buyer's choice.

The double offer is valued at £1.50 and can be obtained by sending to the makers a razor pack top and 20p for post and packing, plus a leaflet that is contained in a special counter display containing six razors. The promotion is supported by eye-catching display material featuring Peter Shilton on the showcards.

## Glittering shades

Elizabeth Arden Ltd, 20 New Bond Street, London W1A 2AE, have introduced new shades in their Self Portrait eye makeup (£1.19) and Naturally Moist lip colour range (£0.80). The shades, sunstruck blue and yellow gold for the eyes, and bronze lame for the lips, have golden glints to make them "glitter" in the light.

## A mystery shopper!

A chance of a weekend in Paris and many other prizes can be won in the mystery shopper promotion by Roger & Gallet Ltd, 16 Lettice Street, London SW6. By displaying products from the Roger & Gallet range in the window during April and May the company's "mystery shopper" will give the chemist a free box of three tablets of soap worth £1.40 plus entry forms to enter their competition to win a free weekend in Paris.

## Baby of the year awards

Clare Timewell of Stoke-on-Trent, and Nicholas Blanks of Pinner, Middlesex, were the winners of the Dettol baby of the year competition in the finals held recently in London. The parents of both babies were presented with a cheque for £1,000 each by television personality, Hannah Gordon, on behalf of the sponsors, Reckitt & Colman Products Ltd, Dansom Lane, Hull HU8 7DS. The 12 runners-up each received a cheque for £100.

## Christmas gifts

Now to hand is the catalogue for the 1974 Christmas range of products from Jean Sorelle Ltd. The company have arranged a number of showrooms during June and July including the following:— June 17-20—Central Hotel, Glasgow; Hendon Hall Hotel, London; June 24-27—Majestic Hotel, Harrogate; July 1-4—Royal Turks Head Hotel, Newcastle-upon-Tyne; July 8-11—Midland Hotel, Birmingham; Metropole Hotel, Brighton; July 15-18—Piccadilly Hotel, Manchester.

## Boots spring colours

Soft pearlised colours have been added to the nail polish and eye shadow shades of the Boots No 17 range. The contrasting pearl finish gives the colours a two-tone effect.

## Weleda launch campaign

A national advertising campaign featuring full-colour, page advertisements in young women's magazines such as *Honey*, *19*, *Look Now* and *Petticoat*, is to be launched by Weleda (UK) Ltd, Littlehurst, Ship Street, East Grinstead, Sussex, for their skin care range. The advertisements show the products surrounded by flowers with snow-capped mountains in the background

to give emphasis to "the freshness of the natural beauty products" which contain say the makers, no preservatives. Point-of-sale show cards and pick-up leaflets are available.

## Sales force combined

Full integration of Maws, Aldersgate House, New Barnet, Herts, with Ashe Laboratories, Kingston Road, Leatherhead, Surrey, took place last week when the sales representatives combined to sell both companies' products following the take-over by Ashe Laboratories.

## Vapona advertising

Advertisements for Vapona mothkiller by Smith & Nephew Ltd, Bessemer Road, Welwyn Garden City, Herts, are to appear in the *Radio* and *TV Times*, *Reader Digest* and some women's magazines.

## Kodak 'return to normal'

Work at the colour processing division of Kodak Ltd, Station Road, Hemel Hempstead, Herts HP1 1JU, is expected to be back to normal from the beginning of April, when they hope to have cleared the backlog of Kodachrome film held for processing since the labour dispute last year.

Kodak are now extending their colour printing services to include Kodacolor "Twenty-one" prints from 110 negatives.

## Home brewing budget boost

The budget will give "a tremendous fillip" to home brewing according to George James, managing director of Unican, Bristol.

Earlier this year, Mr James estimated that the turnover of the supply industry will reach £15 million at retail levels in 1974. "Prices of even the cheapest type of commercial wines which are just drinkable will now run at a minimum of around 60 to 70p a bottle, whereas good quality wine can be made from concentrated grape juice at home for around 17p a bottle" he said. "Cans of take-home beer will now cost around 8p each, but beer should be made at home for about a quarter of the price".

## Bonus offers

Potter & Clark Ltd, 9 Wellesley Road, Croydon CR9 3LP, Wasp-Eze, Standard and large, 13 charged as 12, from wholesalers.

## Discontinued

The following products manufactured by Geigy Pharmaceuticals Ltd, Hurdfield Industrial Estate, Macclesfield, Ches SK10 2LY, have discontinued the following products: Irgapyrin; Micoren capsules 200mg; Medomin capsules, packs of 10; and Tofranil capsules 25mg. Micoren capsules 400mg will still be available in packs of 100 and 500. Tofranil tablets 10mg and 25mg will be available in packs of 100 and 1,000. Pertofran ampoules 10's and Medomin tablets 10's will be discontinued from December 31.

□ Allen & Hanburys Ltd, Bethnal Green, London E2 6LA, have discontinued the supply of Scoline injection. The special display offer for Haliborange tablets has also been withdrawn.

□ When present stocks are exhausted, Abbott Laboratories Ltd, Queenborough, Kent, are to discontinue Abbocin.

Continued on p 401





# Chemist-only saving

Wilkinson Sword Ltd, Sword House, Totridge Road, High Wycombe, Bucks HP13 6EJ, are running a chemist-only voucher pack scheme offering a saving of up to £1.60 on packs of double edge and bonded blades. The packs, available direct from company representatives, consist of three Swordpacks of double edge blades and a Pillarpack of Bonded blades. Other vouchers, obtainable through wholesalers, offer 40p off Swordpacks of double edge blades and Pillarpacks of Bonded blades, and 15p off Pillarpacks of double edge.



# Beecham price changes

A new price structure for Beecham proprietary medicines, effective March 26, was received too late for inclusion in this week's supplement. Retail prices are: Beecham's powders £0.17, £0.31, £0.03 singles, tablets £0.17, £0.31. Beecham's powders & hot lemon £0.19, £0.36, sachets £0.05 each. Phensic £0.17, £0.31, £0.50, strip £0.06. Cephos £0.17, £0.03 singles, tablets £0.17. Dinneford's gripe mixture £0.20. Biocalm family pack £0.50. Eno "fruit salt" £0.20. Fynnon calcium aspirin £0.19, £0.34. Ellimans Embrocation, Universal Lotion £0.23, Royal £0.23. Mac night-nurse £0.50.

# Master closings

Beecham Ethical Distributors\*, Great West Road, Brentford Middlesex, from after business April 11 until start of business April 16. The BED telephone answering service can be used for urgent orders.

# on TV next week

Berto Balsam conditioner: All except CI  
Berto Balsam shampoo: All except B,  
Berto VO5 hairspray: Ln, M, Lc, Sc, W, So  
Nadin: All areas  
Skit: Sc  
Spro Effervescent: Ln  
Body Mist: All areas  
Cylcreem: All except Sc, G  
Rose-Up: All except A, We, B  
Harmony shampoo: All areas  
Head & Shoulders: Sc, U, We, B, G  
Billers Choice Cuts: Y, NE, B  
Unsilk shampoo: All areas  
Pure: All areas

E. H. Butler & Son Ltd, 5 Brunswick Street, Leicester; after business April 14, until start of business April 17.  
CIBA Laboratories, Horsham, Sussex, from after business April 11, until start of business April 17.  
May & Baker Ltd\*, Dagenham, Essex RM10 7XS; after business April 11 until start of business April 16.  
Merck Sharp & Dohme Ltd\*, Hertford Road, Hoddesdon, Herts EN11 9BU; after business April 11 until start of business April 16.  
Unichem, Croydon, Kingston, Willesden, Walthamstow and Preston depots; closed April 12, April 15 with normal service April 13.  
Unichem, Nuneaton, Leeds and Sheffield depots; closed April 16 and April 17, with normal service April 12 and April 13.  
Unichem, Swansea depot; closed April 15, normal service April 13, and open with reduced staff April 12 and April 16.  
Upjohn Ltd\*, Fleming Way, Crawley, Sussex; from after business April 11 until start of business April 16.  
\*Urgent supplies available from John Bell & Croyden, 50 Wigmore Street, London W1H 0AU.

# Equipment

## Detecting shortages in blister packs

A new approach to package contents monitoring is finding use in an increasing number of applications where conventional weighing methods are not suitable. The latest development of the established Scanpak machine is a digital version which now employs multiple probe sensors and an electronic counting circuit which actually counts individual items in the package and summates the reading to compare it with a pre-determined number programmed into the machine which can thus be used to sense under or over filled packs.

Of particular interest to the pharmaceutical industry and those with blister-strip packaging machines, the digital Scanpak is undergoing tests for monitoring contents of a wide variety of blister strip products. Because so many of these use aluminium foil it has necessitated the conversion of the basic Scanpak electronics from capacitive to inductive measuring. The Scanpak can be incorporated as part of a packaging machine itself, as a quality control and since there is currently no equivalent method of guaranteeing a tablet, pill or capsule is present during production of the blister pack.

Another development of the Scanpak principle is also currently under investigation to check the volume of the contents of individual capsules. Because of the very small weights involved and the high speeds of production normal checkweighing techniques can not provide a solution to this problem and it is hoped that the electronic eye of Scanpak, by measuring the dielectric value of each individual capsule at speeds of several 100 per minute, will

# Business Q&A

## In taking stock should I include VAT in the cost price of goods bought subject to VAT?

It is certainly necessary to record the amount of the VAT paid for stocks included in stocktaking. It would be preferable to record this separately since the method of treating the VAT in the accounts may vary. Discuss it with your accountant.

## Owing to an error in my accounts for last year I have paid quite a lot of tax over the amount due. Is there anything I can do please?

You can make a claim for relief in respect of error or mistake under section 33 of the Taxes Management Act. You will need to show that the over-assessment arose from the error made. You should certainly obtain professional help in dealing with this.

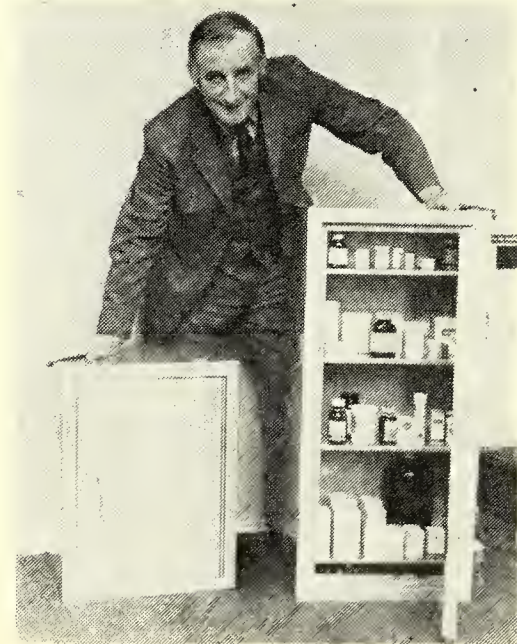
provide a long awaited solution to the problem. Scanpak is supplied by George Kerr Ltd, Hanover Way, Windsor, Berks.

## Security cabinets

Excelsior Security Services Ltd, 64 Bentwick Road, Newcastle-upon-Tyne 4, are manufacturing two steel drug cabinets, designed to meet the requirements of the Misuse of Drugs (Safety Custody) Regulations.

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# Area committees for Scotland returned

The following have been returned as members of Area Pharmaceutical Committees in Scotland; their names have been submitted to the Secretary of State for approval.

**Ayrshire and Arran:** W. Bee, Mauchline, J. Bunten, Catrine, D. Caldwell, Troon, Vivienne Cochrane, Ayr, Marilyn Dick, Kilbirnie, G. A. Gilbert, Ayr, D. A. B. Gunn, Ayr, J. M. Hay, Dalmellington, K. Haughan, Mauchline, W. S. McConnell, Kilmarnock, W. J. Pullar, Mauchline, G. D. Rillie, Cumnock, Hazel Roger, Irvine, J. Woodburn, Darvel, Averill Venman, Newton on Ayr.

**Argyll and Clyde:** Vera Boddy, Paisley, G. H. V. Campbell, Tarbert, Dorothy C. Hamilton, Linwood, J. Irvine, Greenock, J. Kemp, Dunbarton, D. G. MacDougall, Paisley, D. J. M. Marshall, Dunoon, J. O. McDade, Greenock, Betty C. Montgomery, Old Kilpatrick, D. S. Robertson, Gourrock, A. J. P. Shearlaw, Balfour, W. A. Stark, Linwood, A. C. Still, Greenock, Josephine B. Walker, Helensburgh.

**Borders:** W. B. D. Bain, Newtown-St-Boswells, I. Clark, Galashiels, T. N. Crosby, Hawick, C. T. Gray, West Linton, W. J. Y. Hogg, Selkirk, H. K. Holme, Galashiels, C. L. Hutchinson, Earlstoun, A. Sutherland, Hawick, Sheila Warren, Melrose.

**Dumfries and Galloway:** N. G. Blount, Dumfries, Elizabeth Boyes, Dumfries, A. Graham, Castle Douglas, J. M. Irvine, Dumfries, D. MacFarlane, Dumfries, Hellen, S. MacFarlane, Dumfries, J. McCrindle, Castle Douglas, P. R. McHardy, Dumfries, J. C. Neil, Wigtown, W. A. Sutherland, Dumfries, G. W. Western, Carlisle.

**Fife:** Patricia I. Bolton, Dunfermline, R. F. Cruickshank, Cupar, A. L. Dunlop, Kirkcaldy, B. Eggleston, Cowdenbeath, J. Fleming, Leven, D. Herd, Lochgelly, I. M. Heron, Edinburgh, Linda J. Mackay, Kirkcaldy, W. P. Martin, Rosyth, R. Motion, Kirkcaldy, J. Rutherford, Kirkcaldy, H. L. Spears, Kirkcaldy, I. Stalker, Kirkcaldy, J. Thomson, Leven, S. Wozniak, Dunfermline.

**Forth Valley:** A. H. Baxter, Grangemouth, A. Cowan, Bannockburn, G. D. Drummond, Falkirk, G. Elder, Edinburgh, K. J. Gray, Stirling, A. Hunter, Alloa, J. Hunter, Cambuskenneth, J. Hutchison, Stirling, R. N. Lewis, Denny, Elizabeth M. Liddell, Stirling, A. R. Murray, Falkirk, Dorothy M. Scott, Stirling, J. Sharpe, Falkirk, J. M. Turnbull, Falkirk.

**Glasgow:** G. M. Archibald, Glasgow, D. W. Blackwood,

Glasgow, J. E. Bunney, Glasgow, I. M. Caldwell, Glasgow, L. B. Dunn, Glasgow, Jean E. Fleming, Glasgow, D. R. Fraser, Glasgow, T. C. Kelly, Glasgow, D. C. Mair, Glasgow, I. R. McDougall, Glasgow, Elizabeth A. Meikle, Glasgow, Irene K. Morton, Glasgow, A. Sharkey, Milngavie, J. Stewart, Glasgow, J. Summers, Glasgow.

**Grampian:** W. Bain, Aberdeen, D. J. Cruickshank, Turriff, R. C. A. Craig, Aberdeen, G. Downie, Kemnay, H. D. Ewen, Aberdeen, J. J. E. Fergusson, Aberdeen, D. A. Gerrard, Fraserburgh, Frances M. Gordon, Aberdeen, J. E. Green, Buckie, J. A. Lawson, Cove Bay, Margaret H. Malloch, Aberdeen, J. D. C. Menzies, Banchory, M. E. Smith, Aberdeen, K. B. Stewart, Aberdeen, R. W. Thomson, Peterhead.

**Highland:** J. Conn, Dingwall, Frances I. Cruickshank, Inverness, C. S. Forbes, Inverness, I. M. Forbes, Inverness, D. H. Forrester, Nairn, A. Gray, Inverness, M. M. Mackay, Inverness, A. Mackenzie, Inverness, H. C. Reid, Wick, D. J. Robertson, Tain, M. M. Smith, Ardersier, W. Stout, Kirkhill, W. Summerfield, Inverness, T. Thomson, Inverness, M. Taylor, Lairg.

**Lothian:** Sarah C. Bettley, Bellshill, C. R. Blythe, Douglas, J. S. Campbell, Coatbridge, G. R. Craw, Hamilton, S. Driver, Carluke, E. W. Gold, Carluke, I. B. Hyslop, East Kilbride, S. M. McLaren, Larkhall, A. McWilliam, East Kilbride, M. H. Murray, Motherwell, I. Orr, Lanark, W. Y. Samuel, Glasgow, Elizabeth S. Smith, Hamilton, J. C. Somerville, Strathaven, J. Veitch, Lesmahagow.

**Lothians:** G. W. Allan, Edinburgh, D. Bolton, Dunfermline, A. M. Dinwoodie, East Calder, R. Dorren, Edinburgh, T. H. Furber, Edinburgh, Mary M. Gordon, Edinburgh, J. Leiper, Fauldhouse, Dorothea I. L. Locker, Edinburgh, D. MacMurray, Edinburgh, G. W. McGovern, Longniddry, R. A. McGregor, Blackburn, I. M. Mullen, Leith, J. A. Myers, Edinburgh, J. S. Russell, Broxburn, W. F. Stewart, Bathgate.

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**Shetland:** W. D. C. Binns, Lerwick, J. A. T. Lelsie, Lerwick.

**Tayside:** Janette M. Adam, Dundee, W. R. Baxter, Dundee, R. A. Condie, Perth, R. S. Duncan, Dundee, S. Fairweather, Dundee, I. Gillespie, Brechin, B. Kiddie, Dundee, J. J. Marshall, Perth, Anne Y. Miller, Forfar, I. H. Morrison, Dundee, D. W. Richardson, Dundee, I. R. L. Sinclair, Perth, D. L. Thom, Montrose.

**Western Isles:** A. L. Conning, Stornoway, Effie Jardine, Stornoway, Isabella M. MacDonald, Stornoway, Aileen Mackay, Stornoway, A. Matheson, Stornoway.

## Provisional programme for BP Conference

The provisional programme for this year's British Pharmaceutical Conference meeting at Nottingham, September 1-6, is as follows:

### Sunday, September 1

Evening: "Welcome to Nottingham" (buffet supper).

### Monday, September 2

Morning: Opening ceremony; Scientific address by C. A. Johnson (Science Committee Chairman). Afternoon: Science award lecture by Dr B. W. Barry; science session. Evening: civic reception.

### Tuesday, September 3

Morning: Science and professional sessions. Afternoon: Science and history of pharmacy sessions. Evening: Academic reception.

### Wednesday, September 4

Morning: Science session and sectional meetings (hospital and industrial joint session, general practice session). After-

noon: Scientific discussion forums (preservation of formulated products; control of pharmaceutical packaging). Evening: Banquet.

### Thursday, September 5

Morning: Conference lecture by Dr A. S. V. Burgen. Afternoon: Excursion to Burghley House, Stamford, Lincolnshire. Evening: Conference club.

### Friday, September 6

Morning: Symposium: "The design of medicines for oral administration", speakers: Dr A. T. Florence, Dr J. E. Rees, Professor P. Turner. Afternoon: Closing session. Evening: Ball.

A full book of tickets costs £23 but does not cover the banquet which costs £6.00. In addition there is a registration fee for all Conference members of £1. Application forms and further details are available from the Pharmaceutical Society of Great Britain, 17 Bloomsbury Square, London WC1.

## Books

### History of pharmacy in Nigeria

Andrew A. Egboh, PhC, MPSN, 2nd Edition *Literamed Press, Ikeja, Nigeria*, 5½ x 8½ ins, Pp70.

This paperback by the secretary and registrar of the Pharmacists' Board of Nigeria is based on a series of lectures he gives to pharmacy students of the University of Ife.

In 1887 the first pharmacy was opened by Richard Zaccheus Bailey in Lagos. Among the students at that pharmacy were several persons who gained distinction in Nigerian public life. Unfortunately the status and salaries of pharmacists were then so low that most of the students went on to study medicine or left pharmacy for other occupations.

Pharmaceutical training started in Nigeria in 1899 but was first confined to the training of dispensers for service in Government hospitals and consisted of a form of apprenticeship undertaken under the supervision of medical officers, most of whom were European. The first school of pharmacy was that at Yaba, Lagos, in 1924, headed by Dr Gordon Taylor who had been a pharmacist before qualifying in medicine. He was assisted by another British pharmacist Mr Edward Arthur. Later legislation together with the Pharmacy Act of 1945 improved the standard of the pharmaceutical course in line with developments in the United Kingdom. In 1959 the Yaba School of Pharmacy was transferred to the Nigerian College of Arts, Science and Technology which was taken over by the University of Ife in 1963. In the following year the first group of students to read for a degree in pharmacy was admitted. The School became the Faculty of Pharmacy in 1965.

Mr Egboh pays generous tribute to the many British pharmacists who contributed to the development of Nigerian pharmaceutical education, especially to Professor J. M. Rowson who did so much to establish the university course on a sound basis. Others mentioned include Dr V. Walters, Dr R. Hardman and Dr J. Parratt. Several other pharmacy schools have now been opened in Nigeria, including one at the University of Benin and another the Ashmole Bello University.

Mr Egboh includes the statement upon matters of professional conduct of the Pharmacy Board of Nigeria and short biographies of prominent Nigerian pharmacists from the earliest days up to date.

Among these is a tribute to the late Mr A. O. Ransome-Kuti, the only Nigerian to have been made an honorary member of the Pharmaceutical Society of Great Britain and a founder member and staunch supporter of the Commonwealth Pharmaceutical Association.

There is also a brief autobiography of the author who is to be congratulated on giving so much information about Nigerian pharmacy in a small book.



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# Biological availability and therapeutic inequivalence

by Professor R. F. Timoney, MSc, PhD, FRIC MPSI,  
College of Pharmacy, Dublin

An increasing number of publications in the medical and pharmaceutical literature during the past few years have reported differences in the efficiency of absorption from different formulations of the same drug.

The recognition that drug products which are chemically equivalent and satisfy strict quality control specifications for identity, content of active constituent and limits of impurities, can differ in their clinical effectiveness has compelled manufacturers and national drug regulatory agencies, to focus more attention on biological availability.

Bioavailability is the percentage of the drug liberated from the dosage form administered that becomes available in the body for the biological effect. It is frequently determined by the estimation of drug concentration in plasma or urine. It may in some cases be necessary to determine the kinetics of distribution, metabolism and excretion.

Most of the published reports of therapeutic inequivalence have been concerned with tablets or capsules.

Dissolution of the drug occurs not only from the fine particles of the drug ultimately produced, but also to a lesser degree from the intact dosage form before its disintegration and from the fragments and aggregates produced after disintegration. When a drug is administered orally in a solid form or intramuscularly as a suspension, the rate of absorption is controlled by the slowest step in the sequence shown opposite. Disintegration can be influenced by the type and relative amounts of adjuvants used in formulation, the type of coating used for tablets and by variation in the process of manufacture, eg methods of granulation and the compression forces used in tableting.

The release index for drugs from oral solid dosage forms in the British Pharmacopoeia 1973 is a disintegrated test, designed to ensure that tablets or capsules disintegrate under controlled conditions within a specified time. It is not intended as an *in vitro* method for estimating bioavailability.

The rate of dissolution is the rate of solution of the drug from the intact dosage form or fragments or aggregates of the disintegrated dosage form. The US Pharmacopoeia, Edition XVIII, contains a dissolution test which must be satisfied by a number of tablets and capsules in that pharmacopoeia.

The rate at which a drug dissolves from

its intact or fragmented dosage forms in the gastrointestinal tract, or in a parenteral injection site, often partially or completely controls the rate at which the drug is absorbed *in vivo*. When the dissolution process (process 3 in diagram) is much slower than the disintegration process, the deaggregation process and the absorption process, dissolution completely controls the rate of absorption.

The dissolution rate of many drugs when administered in solid dosage forms is the rate-limiting step in their *in vivo* absorption. For this reason much attention has been directed in recent years to the development of dissolution test methods which correlate with *in vivo* absorption data. Strong correlations between tablet dissolution rate and *in vivo* measures of bioavailability have been obtained for several drugs in pharmaceutical formulations.

The importance of biological availability to pharmacists was underlined in a statement prepared by the Pharmaceutical Society's Department of Pharmaceutical Sciences<sup>1</sup> saying that differences in the availability of some drugs to the body are due to differences in the physical nature of the drugs concerned or the different formulations produced by the pharmaceutical manufacturers.

## High risk

A list of drugs with a potential for therapeutic inequivalence was published in the *Journal of the American Pharmaceutical Association* and was prepared from the information available in the literature. In the high risk category, the criteria used were documented evidence of inequivalence, and inequivalence which may lead to adverse drug reaction eg aminophylline, aspirin, bishydroxycoumarin, digoxin, diphenylhydantoin, paraminosalicylic acid, prednisolone, prednisone, quinidine, warfarin.

Moderate risk drugs are those used in critical situations where differences in bioavailability may result in decreased therapeutic efficacy eg amphetamine, ampicillin, chloramphenicol, chlorpromazine, digtoxin, erythromycin, griseofulvin, oxytetracycline, penicillin G, pentobarbitone, phenylbutazone, phenacetin, potassium chloride, salicylamide, secobarbitone, sulphadiazine, tetracycline, tolbutamide.

Low risk potential drugs are those on which controlled studies have been carried out and no bioavailability differences were reported or the differences were not considered clinically significant eg paracetamol, codeine, ferrous sulphate, hydrochlorothiazide, ephedrine, isoniazid, meprobamate, penicillin VK, sulphisoxazole, most drugs in solution.

Most of these drugs are usually adminis-

tered in tablet or capsule form and many of them have a low solubility. The majority are drugs required to control disease or to relieve severe chronic conditions.

The physical properties of drugs can affect their dissolution rates, thereby contributing to variations in bioavailability.

Reduction of particle size produces an increase in surface area and results, in most cases, in an increased rate of dissolution. An increased rate of gastro-intestinal absorption will result if the latter is rate-limited by the dissolution process. Reduction of the particle size of griseofulvin markedly increased the availability in serum and resulted in a reduction (by half) of the dosage of tablets containing the micronised drug. The effect of an increase in surface area on bioavailability has also been shown with digoxin, spironolactone (micronisation increases absorption 10 to 12-fold), tetracycline and tolbutamide.

## Polymorphic forms

Polymorphs ie a drug existing in two or more crystalline forms, exhibit differences in physical properties, including solubility and intrinsic dissolution rates. The use of different polymorphic forms of the same drug in different formulations can lead to variation in *in vivo* absorption rates. Differences in the bioavailability of polymorphic forms have been reported for methylprednisolone, aspirin and chloramphenicol palmitate.

In a few cases, amorphous and crystalline forms of a drug differ in solubility and in their rates of absorption eg amorphous novobiocin is absorbed more rapidly than the crystalline forms.

A number of drugs exist in solvated forms, in particular, hydrates, which differ in dissolution rate from the corresponding non-solvated forms. With a number of drugs, including caffeine, glutethimide and succinylsulphathiazole, the anhydrous forms dissolve more rapidly in water to yield drug concentrations considerably higher than the hydrated forms.

Serum concentrations after oral administration of formulations containing anhydrous ampicillin are reported to be higher than from those containing the trihydrate. It has been shown that dissolving rates of the anhydrous and trihydrate forms of ampicillin should not be rate-limiting in gastrointestinal absorption and it has been suggested that the reported differences in bioavailability are related to formulation factors and not to the hydrated state of the antibiotic.

Dr O. Corrigan, College of Pharmacy, Dublin has found that an alcoholate of hydroflumethiazide has a more rapid dissolution rate than the non-solvated form of the drug.

The adjuvants used with a drug in the formulation of a medicine may have a significant influence on the bioavailability. Manufacturers, as a general rule, prepare their own specifications with regard to the selection and amounts of adjuvants used in their formulations. Even in the case of tablets marketed as "BP", there are in general no specifications regarding the particular adjuvants to be used. In a few cases official tablets are directed to be coated, eg promethazine hydrochloride tablets are sugar-coated; sulphinpyrazone tablets are film-coated. Thus, adjuvants may vary

*Abstract of a lecture presented in Belfast to members of the Pharmaceutical Society of Northern Ireland as part of the 1974 postgraduate lecture programme "Advances in pharmacy and the pharmaceutical sciences".*



providing tablets conform to other quality control specifications, such as the content of drug — within limits — as determined by the assay, disintegration, uniformity of diameter of tablets and uniformity of weight. The British Pharmaceutical Codex 1973 states: "Diluents, disintegrating agents, moistening agents, lubricants and any other added materials must of themselves have no therapeutic action in the quantities present and must be compatible with other ingredients of the tablets."

The choice of adjuvants used for these purposes is left to the manufacturer so permitted variations can lead to possible differences in bioavailability.

Interactions between many drugs and adjuvants have been extensively reported. In many cases, *in vivo* experiments have demonstrated differences in bioavailability resulting from the effect of a change in an adjuvant.

Investigations on the influence of adjuvants on dissolution of drugs from solid dosage forms include binding agents in phenobarbitone tablets<sup>2</sup> and prednisone tablets<sup>2</sup>, adsorbents in promazine tablets<sup>3</sup>, lubricants in the dissolution rate of salicylic acid tablets<sup>4</sup> and disintegrating agent content in the formulation of tolbutamide tablets<sup>5</sup>. It has been shown that if sodium warfarin is dissolved in water or alcohol prior to granulation, the dissolution rate of the tablets is increased<sup>6</sup>.

The granulation process and the compression of the granules have been shown<sup>2</sup> to greatly influence the rate of dissolution of a number of drugs in tablet form, including phenobarbitone, phenacetin and prednisone.

#### Tablet hardness

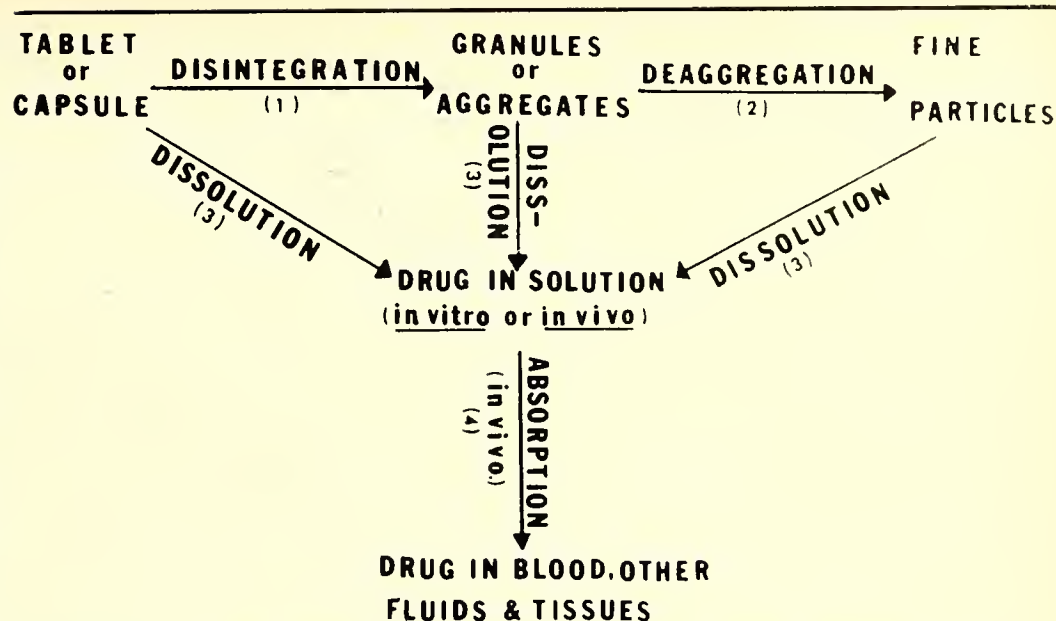
Tablet hardness is another factor influencing dissolution and absorption rates. Varley showed that slow disintegration and dissolution times, due to the hardness of tablets, decreased the plasma levels of tolbutamide and inhibited the attainment of an adequate reduction in plasma glucose.

As tablet manufacture involves so many important variables, it is sometimes assumed that capsules are a more reliable dosage form. For example, higher levels of absorption were obtained when indomethacin was administered in capsule form than in tablets. A lower incidence of side effects was reported with the capsules. Capsules of tolbutamide and of spironolactone were reported to have clinical advantages over tablets.

On the other hand, a combination of hydrochlorothiazide and triamterene formulated as tablets produced higher blood levels than when administered in capsule form. Only 12-18 per cent of the triamterene was recovered in the urine in 24 hours with the capsules, compared with 8-56 per cent with the tablets. The corresponding figures for hydrochlorothiazide were 27-31 per cent and 52-59 per cent, respectively.

The particle size of a drug is more easily controlled in capsules because no compression is employed in manufacture. However, it has been shown that the *in vitro* dissolution of drugs from capsules is influenced by fillers and lubricants.

It is important to consider generic inequivalence in clinical trials. With new drugs it is often convenient to use capsules



until the final formulation of the drug has been decided by the manufacturer. If these "special" batches of drugs for clinical trials are not identical in formulation and hence in biological equivalence to the final marketed product, then the results could be misleading.

Most of the published reports of generic inequivalence have been concerned with oral products. Relatively little is known, as yet, of the equivalence of drugs formulated as aerosols, ointments, suppositories and injections.

The clinical implications of therapeutic inequivalence resulting from differences in bioavailability may be excessive dosage causing intoxication, inadequate dosage resulting in clinical failure and variation in the incidence of side-effects. Wagner<sup>7</sup> summarised the published reports from 1954 to 1971 of controlled studies in which two or more commercial drug products, containing the same drug in the same type of dosage form were compared in man. Large differences in bioavailability were reported in many cases from one product to another.

#### Antibiotic blood levels

Brice and Hammer<sup>8</sup> showed that 16 lots of capsules containing oxytetracycline hydrochloride from 13 different suppliers produced different blood levels of the antibiotic. Seven lots failed to produce blood levels exceeding the usually accepted minimum level of 0.6mcg/ml. The American Food and Drug Administration withdrew recognition of those generic equivalents which failed to produce satisfactory blood levels until the manufacturers provided adequate evidence of therapeutic equivalence.

An outbreak of anticonvulsant intoxication was reported in Australia (1968) following administration of phenytoin. Lactose had been substituted for calcium sulphate dihydrate as the capsule excipient and the concentrations of magnesium stearate and magnesium silicate slightly increased. It was accepted that the formulation change was probably related to the increased serum concentrations of phenytoin.

In a paper on the generic inequivalence of tolbutamide tablets, Varley showed that a minor change in the composition produced significant changes in serum tolbutamide levels and serum glucose. Five healthy, non-diabetic volunteers were given two tablets (1.0g) of a branded preparation of tolbutamide, and another five received two tablets of a formulation containing the same amount of tolbutamide but the amount of disintegrant (Veegum) was only half that present in the brand tablets. Both formulations satisfied the USP specifications completely. The dissolution rate of the branded preparation was 3.8 minutes, whereas that for the experimental USP equivalent tablets was 103 minutes. The area of the serum tolbutamide level-time curves with the branded tablet was 3.75 times that for the USP equivalent tablet.

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#### Digoxin

Many studies have demonstrated differing bioavailabilities between brands of digoxin tablets. The absorption of digoxin from Lanoxin tablets in clinical use since June 1972 is considerably higher than that from Lanoxin tablets manufactured between 1970 and May 1972. Comparative studies have shown there was little difference in the availability of digoxin for absorption from Lanoxin tablets made between 1970 and 1972 and from other brands then available in the UK.

Dissolution rates of digoxin tablets available in the UK have been investigated by Fraser *et al.*<sup>9</sup> The dissolution rate of the new Lanoxin formulation was found to be much higher than that for the old formulation and several of the other brands investigated had dissolution rates approximating to those of the original Lanoxin tablets.

Beckett and Cowan<sup>10</sup> investigated the dissolution after 30 minutes of digoxin from batches of tablets marketed by 24 UK and five overseas companies. They found that dissolution varied widely, ranging from 19 per cent to 92 per cent of the stated content of digoxin. They also found considerable differences for dissolution at 30 minutes between different batches from some individual manufacturers. In one case, the dissolution at 30 minutes ranged from 28 per cent to 80 per cent of the stated content.

Dr O. Corrigan and I have carried out a similar study in the College of Pharmacy, Dublin, with digoxin tablets marketed by various manufacturers.

*Continued on P 407*



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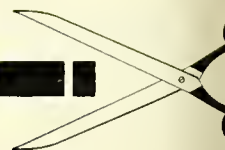
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Continued from p 405

keted in the Republic of Ireland. We found that the dissolution at 30 minutes of digoxin from different generic digoxin tablets varied between 27 per cent and 91 per cent.

Correlation of dissolution rates of digoxin tablets with biological availability has been obtained by Lindenbaum *et al*<sup>11</sup> in the USA and Johnson *et al*<sup>12</sup> in Great Britain. The dissolution-rate method employed in each study is a modification of the USP XVIII technique. Plasma-digoxin concentration and urinary excretion were measured following administration to healthy volunteers. The findings show that dissolution-rate can be used to indicate whether a given sample of digoxin tablets will show adequate bioavailability. The authors of both papers suggest that a minimum acceptable level of dissolution-rate should be established for digoxin tablets.

The majority of patients using digoxin are elderly and many have impaired renal functions. Toxicity or under-digitalisation can therefore be critical. It is not possible to reduce the variability due to biological factors, but efforts must continue to reduce differences in bioavailability attributable to pharmaceutical factors.

The recently introduced BP requirement for content uniformity is of no value in controlling the bioavailability of digoxin from different generic products. The establishment of a dissolution procedure as an *in vitro* predictor of bioavailability of digoxin from tablets is necessary to ensure that marketed products satisfy a minimum acceptable level of dissolution rate. The National Drugs Advisory Board in the Republic of Ireland has recommended doctors to continue to prescribe the same brand of a drug when patients are known to be responding satisfactorily to treatment.

A research student in our department has found that urinary excretion data for hydrochlorothiazide can be correlated with *in vitro* dissolution rates using the Levy beaker method at slow stirring speeds. However, it was not possible to correlate the *in vivo* data with dissolution rates using the USP dissolution rate method.

#### Available data

A survey was conducted by two American hospital pharmacists Cawthorne and Eckel<sup>13</sup> to assess how much bioavailability data from drug companies was available for use by pharmacists and to evaluate the potential worth of such data in drug product selection.

One hundred and fifty-six US pharmaceutical companies were surveyed to determine whether or not they would supply bioavailability data on 147 drugs marketed as 1894 pharmaceutical products. Ninety (57.7 per cent) of the companies responded. Acceptable data were submitted on 59 drugs, of which the information on 46 drugs was considered blood-level bioavailability data, while that on 13 drugs was considered clinical bioavailability data. Only data resulting from dissolution or disintegration, and data measuring non-quantifiable responses were classified as non-bioavailability data. No acceptable data were submitted for over half the number of drugs in the survey.

Some of the results of the survey are

worthy of note. Although several drugs known to produce low blood levels on oral administration were included in the list surveyed, data were received on only one (digoxin).

There were 50 single-source drugs in the no-data group and 17 in the data group. The entire survey had 52.4 per cent single-source drugs, the data group had 37.0 per cent and the no-data group had 59.4 per cent. The difference between these values may be due to the FDA abbreviated new drug application procedures, in which a company intending to market its own product of a previously approved drug is required to submit bioavailability data to demonstrate that its product is comparable to the established one. In this case, the newer product would be more likely to have easily-retrievable bioavailability data for submission.

In several instances in the survey the original product had no data submitted by its manufacturer, although bioavailability data had been reported for subsequent generic products. In most of the latter, the original product was used as the reference for evaluation of the new product.

Although acceptable bioavailability data on single-source products is necessary, it would be better to have valid comparison data on several manufacturers' products of the same drug and dosage form. The survey revealed that such data hardly exist. Acceptable data on fifteen drugs were received from more than one company. However, in the opinion of the authors, comparisons could be made in only six cases because of variations in tests and study design. The six products were: ampicillin capsules, dicloxacillin capsules, lithium carbonate capsules, nitrofurantoin tablets, oxytetracycline capsules and tetracycline capsules.

#### Conclusions

The evidence of therapeutic inequivalence as manifested by differences in bioavailability between generic products is a matter of concern to the pharmacist engaged in community, hospital or manufacturing practice. The information available on bioavailability of drugs is not extensive and the recent survey by Cawthorne and Eckel, clearly indicates that bioavailability data are available on a relatively small number of drug products in the USA.

Therapeutic inequivalence can result from other factors besides the physicochemical properties of drugs, differences in formulation and in methods of manufacture. Few properly constructed trials for comparison of the therapeutic equivalence of drug products containing the same drug in the same dosage form have been reported.

Measurement of therapeutic equivalence of drugs in clinical medicine is difficult because of such factors as biological variation in the effects of drugs, which may be due to differences in body-weight and basal metabolic rate in patients, the natural course of the underlying diseases, nutritional states and the frequent lack of objectivity in the measurement of drug effects. The assumption that drug products are therapeutically equivalent if they give comparable drug concentration levels in plasma and/or urine following administration, can be criticised because drug activity

is not necessarily related in all cases to the plasma or urine concentrations.

Pharmaceutical companies and many national drug safety regulatory agencies now recognise that evidence of acceptable bioavailability information must be provided as an additional specification of safety and efficiency. We may therefore expect a considerable increase in data on biological availability in the future. It is likely that a reliable *in vitro* method for correlation with *in vivo* methods of determining bioavailability will be developed. The use of reliable *in vitro* correlation methods would facilitate batch-to-batch testing of bioavailability, which is not practicable with expensive and time-consuming *in vivo* methods.

Pharmacists must keep themselves well informed in this field. Many of us, particularly those engaged in hospital pharmacy, will be consulted by our medical colleagues on the bioavailability of drug formulations, such as published information on the bioavailability of a particular drug from generic products.

Information on bioavailability will also be useful in assisting pharmacists in hospital or general practice to exercise their judgment in the selection of drugs for purchase. The problem of bioavailability in relation to the cost of medicines prescribed by general practitioners was referred to by Sir Philip Rogers (Permanent Secretary, DHSS) at a meeting of the Committee of Public Accounts in 1973<sup>14</sup>. Replying to a question on estimated savings in a previous financial year if unbranded equivalents had always been prescribed, Sir Philip said a similar statement could no longer be made, . . . "what we previously thought to be identical drugs, one branded and the other not, are now considered not to be necessarily identical."

Obtaining and interpreting bioavailability data presents problems, because the information is either unavailable or difficult to obtain, the available data are presented in a non-uniform manner and interpretation may be difficult, particularly for pharmacists with no training in biopharmaceutics. It may be necessary, therefore, for some of our professional associations or academic staff in schools of pharmacy to help in the collection and indexing of published information on the bioavailability of drugs, so that practising pharmacists, who have no easy access to a wide range of pharmaceutical and medical literature, may readily obtain information in this field when required.

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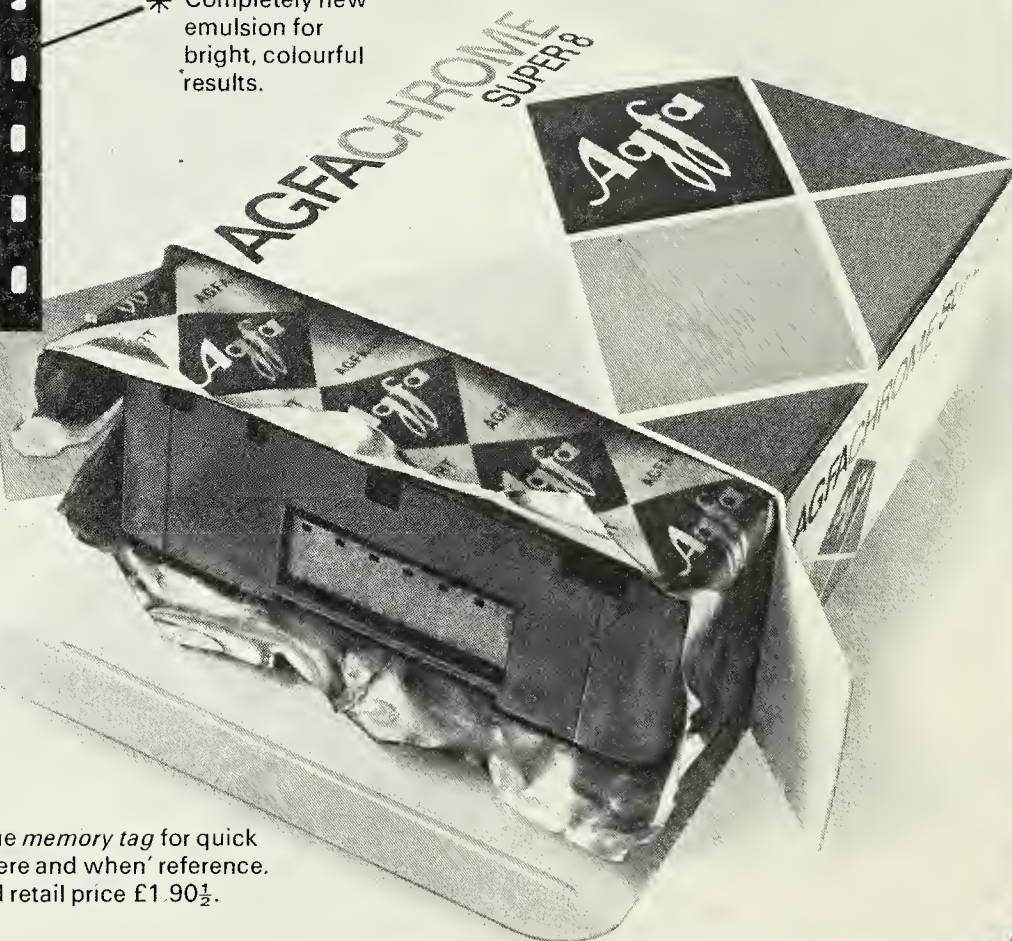


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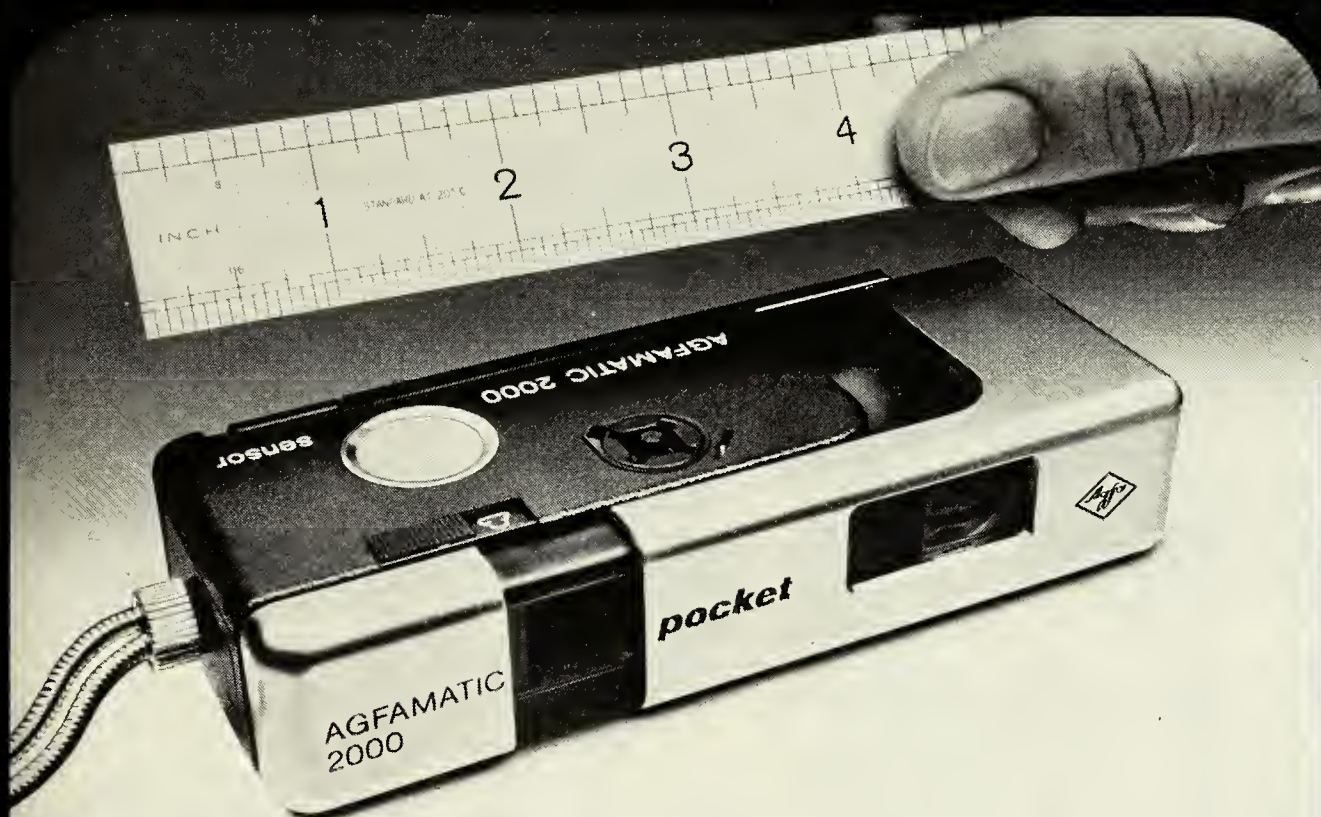
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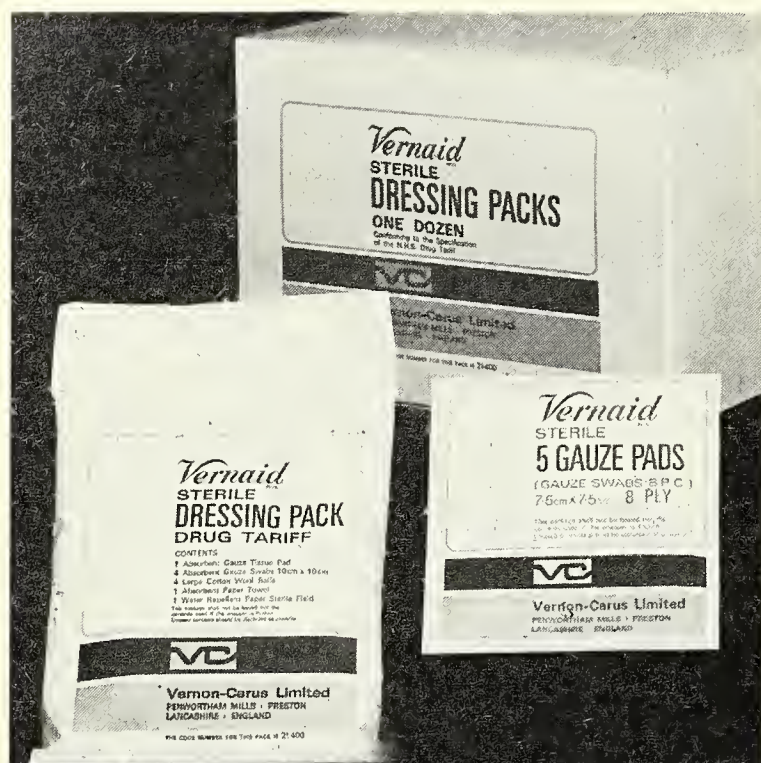
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Health and Social Services Journal, Nov. 10th 1973, 2620.



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# Letters

## Recognition — first act the part

I am writing to express my utter dismay at the recent meeting of Area Chemist Contractor Committee representatives. As a relatively new boy to pharmaceutical politics I expected that we were going to be given advice and leadership on how pharmacy could best exploit the reorganised Health Service, since I feel that the function of contractor committees is to be pursued by all legal means the interests of the contractors it represents. But what did we get at the conference?

Quite simply we got the softly, softly approach which is based on being respectful to the BMA and definitely non-militant with the Ministry. It seems to me that our leadership has lost sight of the fact that the Health Service is part of a political animal and that politics are about power. In the past that power has been in the hands of the medical profession but now, for the first time, pharmacy can have its fair share through the Area Pharmaceutical Advisory Committee which has equal access to the new fountain head of the Health Service, namely the Area Health Authority. There is no doubt that enlightened GPs have already appreciated this fact and do not welcome the way in which they have been emasculated.

### Opportunity missed

We now have a real opportunity to influence the shape of the Health Service for the good of pharmacy and our patients. But did anyone from the platform at our conference attempt to enthrone our committees to use all the new arenas of influence to maximum effect? Instead we got an explanation of how the system works but no leadership. It is a tragedy of pharmacy that whilst we are offered a unique opportunity to improve our position we are going to miss out because of our lack of leadership. At last I can understand why our negotiators seem to come away from the Ministry with little more than a cup of tea!

As I looked around the room I wondered if an outsider would guess that we were the delegates (the cream?) of a profession that seeks social and professional parity with the medical profession. I am glad to say that they would well have mistaken us for the booking clerks' annual convention. This may seem a frivolous point, but the implications go much deeper because they symptomise the way in which we as a profession consistently undersell ourselves to the public and probably the Ministry.

The typical GP is seen to dress well, to speak confidently with assurance, to drive in an executive car (usually clean and shiny) and is paid for giving advice. His pharmaceutical colleague, if the conference can be taken as a guide, can be seen to dress badly, to give advice hesitantly in case

he offends the GP, to drive a small car, to live modestly and accept a lower station in life.

I am not, of course, suggesting that we all go out and buy a Rolls Royce, but I am trying to point out that these subliminal factors must play a part in influencing our negotiating efforts at local and national level. If we are seeking parity we must look and act the part, a humble modest appearance will achieve nothing.

This letter is an attempt to stimulate discussion on the ways of making our negotiating procedures more effective, and I am sure my committee would welcome suggestions on the part it could play.

Perhaps our directly elected representative on the Central Contractors Committee has some guidance for us?

**Graham Walker**  
Secretary, Lincs Area Chemist Contractor Committee

## State control

If Mr Hutchinson will go back and read my letter properly he would find that I described the suggestion of a State service being an improvement as "rubbish". We may yet finish up with Mr Blum's ideas, and perhaps it may be of our own choosing. If we do, we will no longer have a profession.

I do not know where Mr Hutchinson gets his ideas, but I challenge him to provide any evidence that I indicated a desire to join the Labour party's working group on the pharmaceutical industry.

I have not the slightest interest in the industry. My interest is now and has always been in the retail profession which is the bedrock of pharmacy, and I will not stand willingly or silently by, when "pundits" are prepared to sell it down the river.

If Mr Hutchinson cannot honestly see that Mr Blum's proposals mean inevitably a final State take-over of dispensing, then we are agreed on one thing . . . Mr Hutchinson has impeccable qualifications to be a member of the present Council.

**M. Millward**  
Enfield

## Adverse drug reactions

Professor D'Arcy defended (February 23) his inclusion of erythromycin in a list of nephrotoxic drugs (February 9) by means of Oken's unsupported statement that "necrotising renal vasculitis . . . had previously been attributed to" erythromycin, among other drugs<sup>1</sup>.

I and my staff have tried to find published case reports which support unequivocally this position. We have not succeeded. Several authors place erythromycin in a group of nephrotoxic substances but, with one exception, none provides direct evidence, few references.

One paper, which is a reference common to several, is by Winkelmann & Ditto<sup>2</sup>, whose case 23 was given erythromycin for a presumed infection in March, relapsed in April, and was then given tetracycline. Later she developed haematuria. The authors did not themselves attribute this patient's renal injury to erythromycin but later writers evidently have done so. This case, at least on the face of it, seems to be the sole foundation for the legend of erythromycin nephrotoxicity.

In 1972 Handa<sup>3</sup>, published a case report of Schonlein-Henoch syndrome with nephritis which he attributed to erythromycin, given in a total dose of 6 tablets. This patient however had applied "Soframycin impregnated gauze" under-strap-ping for an unspecified period to a leg ulcer for which, in the end, he was given erythromycin. Acute allergic reactions and systemic toxicity arising from the application of excessive amounts of framycetin for more than a few days is a possibility that will not be doubted, so that even in this patient the evidence against erythromycin is not entirely satisfactory.

It would be rash of me to assert that there are no case reports, or more substantial ones somewhere in the world literature linking renal vasculitis with erythromycin. Certainly one does not find warnings about nephrotoxicity of this antibiotic in any manufacturer's "literature" or standard textbooks, either of pharmacology or medicine. What one does find in such texts is that erythromycin does not need to be given in reduced dose to patients with impaired renal function<sup>4</sup>.

The matter is not merely of commercial importance. More and more people with severely reduced kidney function are surviving and need, from time to time, an antibiotic which will not accumulate to toxic levels. Erythromycin is one such. It is not nephrotoxic.

**W. H. Lyle**  
Medical director,  
Dista Products Ltd,  
Liverpool.

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## Action on rural dispensing

Further to the letters on the question of rural area dispensing, your readers will be interested to know that at the National Chamber of Trade conference, April, there will be a motion down for discussion on this subject.

This motion, in the name of Parkstone and District Chamber of Trade, will call for action to remove the unfair advantages now enjoyed by dispensaries operated by medical practitioners. No doubt there will be several pharmacists active in the Chamber of Trade movement who will wish to attend the conference and to support this motion.

**Stanley Bubb**  
Poole, Dorset

□ The British Overseas Trade Board has revised its annual export wall map and copies of the new edition are being issued by export officers in London. The large coloured world map shows the whereabouts of British diplomatic service posts and British trade correspondents. The value of British exports to most overseas countries during the year 1973 is also shown.



# Industry rejects plan to list cosmetics ingredients

The suggestion that cosmetic and toilet preparations should have a declaration of ingredients on labels or promotional material was criticised by members of the cosmetic industry at Interphex 74. They told Mrs Joyce Butler MP that her ideas would not provide meaningful information.

Mrs Butler had said that although MPs appeared to consider cosmetics as trivia there was a growing consumer demand for more information on labels. "I believe public protection in regard to toilet preparations is as important as it is in regard to food and drugs."

She had no reason to doubt the claims made for the high standards in the industry but "we have to take the high standards on trust".

If a customer was not given a list of ingredients of cosmetics on the container or otherwise, then there must be a permitted list of ingredients to which that customer could refer. Although it was second best "we have accepted the positive list in regard to food, I can see no good reason why it should not be applied to cosmetics".

Parliament would be making new legislation said Mrs Butler, concerning the EEC directives on cosmetics and toiletry products. It was essential for those with consumer interests and the industry to get together to "get ideas" of what the legislation should cover.

## 'Bewildered' customers?

Mr C. D. Spink, Beecham Products, felt the customer would be bewildered by ingredient declarations. They required a measure of reassurance that the adopted standards were "as good as we can make them."

Mr N. J. Van Abbe, Beecham Products research department, was not against the principle of declaring ingredients on a label, but he doubted if such declarations would reduce or prevent the very small number of allergies that were reported.

After pointing out that the industry shared Mrs Butler's concern about allergic responses, another member asked if she realised the extreme difficulty of pinpointing the cause of the reaction. "We are not certain that this year's lavender oil will be the same as the lavender oil from the same field next year". It wasn't a problem to be solved by legislation.

Mrs Butler welcomed a suggestion that some members of the industry should discuss their problems with her. Her paper was one of a series on "The consumer, the legislation and the company arranged by the Society of Cosmetic Chemists or Great Britain in conjunction with the Interphex 74 exhibition at Brighton.

During an earlier paper, Mrs D. L.

Webberburn, Unilever Ltd, pointed out that until recently, profit was considered to be the only criterion of a successful business. Nowadays society demanded that business accepted much wider responsibilities and insisted it should be accountable for the social consequences of its actions. She suggested that companies should regularly conduct or have conducted inquiries similar to financial audits to ascertain if they were measuring up to their social responsibilities.

## Pharmaceutical service estimates published

Pharmacists contracting to the NHS in England are expected to receive total payments of £263,100,000 during the coming year, compared to an estimated £233,700,000 for 1973-74. These figures are given in Supply Estimates 1974-75 Class XI Health and Personal Social Services and Class XII Social Security (HM Stationery Office £0.85). Prescription charges retained by pharmacists are estimated to be £23,900,000 (£21,700,000 for 1973-74).

In Scotland, payment to pharmacists in 1974-75 are estimated to be £30,789,000 (£28,618,000), £2,540,000 (£2,465,000) being from retained prescription charges. The figures for Wales are given as £20,773,000 (£18,731,000) and £1,653,000 (£1,508,000) respectively. Estimated hospital costs for England and Wales are not given, but the estimate for Scottish hospital pharmacy services is £12,802,000 (revised estimate for 1973-74 £11,584,000).

## Health education courses for pharmacists

The Health Education Council has arranged with some universities and polytechnics for full time courses in health education for members of all professions concerned, including pharmacists. Part-time courses are also being planned. Details from the Health Education Council, 78 New Oxford Street, London WC1A 1AH.

## Infusion 'habit' should be discouraged

Those who routinely set up an intravenous infusion as a convenient route for administering drugs should review their habits says a leading article in last week's *Lancet*.

Such techniques carry a substantial risk of morbidity and mortality, says the article, and accidents associated with their use should be reported to the medical Press as well as the proper authorities.

The ill-effects of infusion of grossly contaminated fluids are soon noticed and the cause more readily traced, but incident in which small numbers of bacteria are introduced into the patient are hard to recognise: the resulting septicaemia may occur haphazardly and continue for some time before the cause is found. The most common sources of microbial contamination are infected delivery apparatus of skin at the site of injection says the article which concludes that recording batch numbers of intravenous fluids in patient's notes is of little value in investigating such incidents.

## Teamwork key to success in reorganised NHS

The efficient working of the reorganised health service depends on successful teamwork between professional and occupational groups rather than on the leadership of the medical profession, says the latest Office of Health Economics report, "The NHS Reorganisation".

"If this is not recognised then the full potential contribution of groups such as nurses, physiotherapists, pharmacists or administrators may not be realised."

The unified management structure should permit a more flexible allocation of resources and effort throughout the health services says the report, although criticism has been made that parts of the complex pattern of managing and advisory teams may prove unworkable in that "it may become rule-bound and dominated by the upper echelons of the bureaucracy at the expense of local autonomy."

The role of the public and health care workers other than doctors in decision making may need to be strengthened, the report concludes.

## Chemists' sales up 16pc

Retail sales by chemists and photographic goods dealers for February were 16 per cent ahead of the equivalent 1973 figure. The Department of Trade's index was 120 (1971=100) while that for independents alone was 108 (up 11 per cent). NHS receipts are not included. The index of all kinds of business was 123, an increase of 11 per cent on 1973.

## Conference on self-care and health maintenance

Self-care and health maintenance will be the subject of a one-day conference at the Royal Society of Medicine on May 2. The conference has been arranged by the Panel on Self-Care, an independent research and study group founded by the Proprietary Association of Great Britain.

Dr Roger Bannister will be one of the eleven speakers. The speeches will examine self-care and self-medication from the points of view of the individual, the general practitioner, the administrator and the manufacturer. Chairman will be Professor John Butterfield, Vice-chancellor of Nottingham University. Attendance is by invitation only, and further information and tickets may be obtained from: The secretary, Panel on Self-Care, 21 Manor Road North, Wallington, Surrey.



# The Equine market is growing.

## Are you getting your share?

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Crown bring you four very effective, widely-used products to treat the most common ailments in horses.

### Newmarket Cough Syrup

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Please send me further details of Crown Equine Products.

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CD2



# Company News

## ICI companies in Europe renamed

ICI pharmaceuticals division's eleven companies in Continental Europe have been re-named ICI-Pharma. The last to adopt the new name, Rhein-Pharma in West Germany, changed on April 1.

The adoption of a common world-wide pharmaceuticals identity ICI regards as an important step in its plans to expand its pharmaceuticals business, which achieved world-wide sales of £100 million in 1973.

ICI began to develop its European pharmaceuticals business in the early 1960s and has since invested in factories, offices and warehouses in Germany, France and Italy. Continental Europe is now said to account for 38 per cent of the division's total business and the number of its employees there has grown to 1,250. Future developments include the construction of a French research laboratory.

## Barclay acquisition from Wellcome

Barclay & Sons have acquired the industrial medical section of the Wellcome industrial division from Wellcome Foundation.

Both Barclay and Wellcome have had active divisions in the industrial medical field for many years and the acquisition is said to allow Barclay to provide a more local service to industrial medical customers. Existing Wellcome Industrial customers are asked to send their orders, for the time being, to Hildreth & Company Limited, 29 Bourneville Lane, Birmingham 30.

In the near future, an industrial medical service will be provided from Barclay depots in the North, East Midlands, West Midlands, South Midlands, London and South Wales. The Wellcome industrial division will continue to service customers with the Calmic hygienic services and to supply the range of Cooper pesticides and aerosol products.

## Stamp to commemorate new building

A special handstamp will appear on all mail despatched from Janssen House—the new headquarters of Janssen Pharmaceutical Ltd, Marlow, Bucks.—on the official opening of the building on May 6.

Readers wishing to receive this "cover" may send envelopes to Janssen Pharmaceutical Ltd for return posting on May 6 or, alternatively, personally post mail in the special post box which will be installed in Janssen House that day.

Envelopes for handstamping must arrive by April 30 and should be approximately 8 in x 5 in (to accommodate a souvenir booklet), pre-stamped (3½p), pre-addressed,

unsealed and sent to Department AST, Janssen Pharmaceutical Ltd, Janssen House, Chapel Street, Marlow, Bucks SL7 1ET.

## Hanimex may set up factory in Ireland

Hanimex in Australia reported a 28 per cent rise in pre-tax profits to \$A2.06m in the half-year to December 31 1973. Consolidated sales, including those of overseas subsidiaries, rose 33.8 per cent to \$A21.53m. Shareholders are to receive a one-for-ten bonus issue. The new shares will participate in the same interim dividend of 5 cents per share.

Managing director, Mr Jack Hannes, said that in the light of the Australian Government's attitude to the value of the Australian dollar against other currencies, "it is not feasible to continue the development of further manufacture for export from Australia. Accordingly, we are planning more substantial manufacturing facilities overseas." Hanimex is currently in negotiation with the Irish Government to set up a major manufacturing plant in Cork.

## Voluntary liquidation for Vespucci

Lack of working capital, failure of the works to meet deadlines, and the introduction of the three day week, were the reasons given for the collapse of Vespucci Ltd, manufacturers and distributors of perfumes and ancillary products, of Red Lion Street, London WC1, at a recent meeting of creditors. After provision of £254 to preferential creditors, net assets were estimated to realise £4,246, showing a deficiency to unsecured creditors

of £9,281. Mr Martin J. Spencer, FCI of Stoy, Hayward and Co, 95 Wigmore Street, London W1, was appointed liquidator.

## Briefly

**Boots-Fraser bid:** The Monopolies Commission has been given two more months in which to complete its inquiry into Boots-House of Fraser merger proposal. No explanation has been given for extension, but it is believed that the Department of Fair Trading has been under considerable additional pressure because of the three-day week.

**H. W. Selby Ltd** are transferring to Sussex Road, Haywards Heath, Sussex (from 7 South Road), where they will trade as H. W. Selby (G. V. Seanor, MD). The limited company will be voluntarily liquidated in due course. Mr G. Marples, will continue to manage the pharmacy.

## Appointments

**Hall Forster & Co Ltd:** Mr Norman Dargue has been appointed to the newly created position of Care Group development executive. Mr Dargue is a former NPU Marketing Ltd salesman in the Northumberland and Durham area with experience in the marketing and merchandising field.

**Sperry Remington Electric Shavers:** Mr Mayhew has been appointed Southern region salesman and Mr G. Dawson has been appointed a Northern region distributor salesman.

**Kimberly-Clark Ltd:** Dick Lumley has been appointed northern region sales manager at the company's Prudhoe Mill, Newcastle. Previously area manager for the Tyne-Tees area, he has spent all his time with KC in North-east. Brian Douglas is appointed sales training manager at the company's new sales training centre near Maidstone. Mr Frank Levene is the new product manager for Kleenex and Delsey toilet tissue brands. He was previously an assistant product manager with Rank Hovis McDougall responsible for Energen products.

A five-man delegation from a pharmaceutical study group of the China National Chemical Import and Export Corporation arrived at Heathrow on March 24 for the first visit of its kind to Great Britain.

Arrangements for the visit, which included 12 pharmaceutical companies, have been made by the Association of the British Pharmaceutical Industry in collaboration with the Sino-British Trade Council. With the guests in the photograph are Mr R. D. Smart, Glaxo Holdings Ltd (third from left), Mr S. M. Peretz, Cyanamid Ltd (fifth from the left) and Mr J. A. Smith, Upjohn Ltd (extreme right)





# Market News

## ARBITURATES UP

On April 3: Prices of barbiturates advanced by around 11 per cent a week, the rise being attributed to the cost of imported raw materials. Paraffins were also substantially ahead of last week's rates.

There was further upward movement in the essential oils, including anise, fennel, palmarosa and sandalwood. Eucalyptus, however, eased in both positions.

Among crude drugs, increases were recorded for belladonna root and European lobelia, with tolu balsam showing a 10 jump in both spot and shipment prices. Otherwise, the market was quiet, showing little movement.

## Pharmaceutical chemicals

Saline: (per g) Synthetic, 1-kg lots £0.09  
 £0.10; acid tartrate £0.075 acid £0.80 for  
 ar quantiles.  
 Sol: Synthetic ethanol, £ per proof gal:

Gal	PBS 95%	Absolute 99.5%
(bulk)	0.3068	0.3188
(drums)	0.3218	0.3338
	DRS 96%	DRAA 99.9%
(bulk)	0.3798	0.3918
(drums)	0.3948	0.4068

50-kg lots £9 kg.  
**acrine hydrochloride:** £33-50 kg.  
**barbitone:** 50-kg £4-46 kg; sodium £5-07.  
**BP grades, 2-4 ton lots per metric ton, in**  
**bags delivered—granular** £95; **crystals** £126;  
**extra fine powder** £108 **Technical**  
**less £26 per ton for British materials; less**  
**for imported**  
**acid:** **BP grade per metric ton in 2-4 ton**  
**granular** £127; **crystals** £178; **powder** £103;  
**fine powder** £108 **in paper bags, carriage**  
**Technical is £26 per 1,000 kg less than**  
**grades for British material; less £10 for im-**

Prices: Crystals (£ per metric ton).	50 kg	250 kg	ton
Barium	512.00	487.00	457.00
Cesium*	462.00	437.00	427.00
Strontium	456.00	431.00	421.00

der plus £24 per ton.  
parbital: 50-kg £6.32; sodium £7.11 per kg.  
parbitone: £6.00 kg for 50-kg lots.  
ramphenicol palmitate: £30.00 per kg.  
rine: Alkaloid £222 kg; hydrochloride £202.75.  
ect to DDA Regulations  
sone: Acetate to £240 kg.  
parbitone: £4.91 for 25 kg; calcium £4.91.  
sone: £3.50 per kg.  
anthenol: £10 kg; £8.50 kg.  
omethorphan: Hydrobromide £110 kg.  
dium bromide: 5-q lots £3.20 q.  
ocortisone: Acetate to £220 kg.  
urochrome: £7.95 per ko.  
aly: Acid £15.75 per kg; sodium £21.50.  
ylated spirits: In 2,500-bulk gal (and in 20 x  
al drums) per bulk gal — IMS 66 OP £0.5415  
645). Perfumery grade 6 SOP £0.5945  
175). Mineralised 64 OP, £0.6555 (£0.5785).  
yl phenobarbitone: Prices fluctuating.  
otile: Alkaloid and hydrochloride in 25-kg  
£15 kg.  
nchin sulphate: 5-kg lots £36.00 kg.  
tes: (£ per kg) in 1-kg lots subject to DDA  
lations.

	From	To
oid	198-00	206-00
ochloride	172-00	180-00
phate	151-00	157-00
<b>Imorphine</b>		
ochloride	193-00	200-00
<b>phine</b>		
oid	218-00	226-00
ochloride	178-00	185-00
hate	178-00	185-00

**ic acid:** Nominally £220 metric ton.

**Paraffins:** (Per gallon) Liquid BP, £0.989; light liquid BPC 1963, £0.882; technical white oil WA 23, £0.804; WA 21, £0.859 (drums extra). Petroleum jelly soft white grade 54, £175.50 ton; yellow grade 60, £162.00 ton.

**PAS sodium:** £1.40 kg.

**Penicillin:** Potassium, sodium of procaine, sterile £9 per 1,000 Mu for 5-25,000 Mu lots.

**Pentobarbitone:** 50-kg lots £5.79 kg for acid an £6.13 for sodium.

**Pethidine hydrochloride:** From £13.30 to £14.90 kg as to the maker and quantity. Subject to DDA Regulations.

**Phemitone:** 25-kg lots £4.24 kg.

**Phenobarbitone:** 50-kg lots £4.52 per kg; sodium £4.97.

**Pholcodine:** From £198.36 to £223 per kg as to maker.

**Potassium acid tartrate:** Dearer. BPC £783 per metric ton in bags delivered.

**Quinalbarbitone:** Sodium and acid £6.37 kg for 25-kg lots.

**Sodium benzoate:** One-metric ton lots £283.30.

**Sodium bicarbonate:** BP £30.21 per 1,000 kg minimum 10-metric ton lots delivered London.

**Sodium carbonate:** Anhydrous £107 per metric ton.

**Sodium chloride:** Vacuum dried £8.73 per 1,000 kg in plastic sacks for 10-metric ton lots, ex works.

**Sodium citrate:** Granular £360.00 per metric ton in 250-kg lots. Powder, £370.30.

**Sodium perborate:** (per 1,000 kg) monohydrate £283.50—terahydrate £145.75.

**Sodium perchlorate:** (per metric ton) £170.75.

**Sodium potassium tartrate:** £315 per metric ton.

**Sodium salicylate:** Per kg in 5-metric ton lots £0.54; 1-ton £0.55; 250-kg £0.56½; 50-kg £0.59.

**Sodium sulphate:** BP crystals £44.65 metric ton; commercial £19.30; anhydrous £48.00 (approx). All ex works.

**Sodium thiosulphate:** £55 per metric ton.

**Streptomycin:** £11.00 kg base; dihydrostreptomycin £11.50 kg base.

**Tetracycline hydrochloride:** £10 per kg of activity.

**L-Thyroxine:** £1.25 per kg.

**Theophylline:** (50 kg) Hydrate and anhydrous £2.76 kg; 100-kg £2.73;—ethylenediamine (amino-phenyl) £3.36 kg (50-kg) and £3.33 (100-kg).

**L-Triiodothyronine sodium:** £2.50 per g.

## Crude drugs

**Aconite:** Spot nominal £1,300 metric ton, cif.  
**Agar:** Spanish nominally £6-15 kg.  
**Balsams:** (kg) **Canada:** nominal, **Copalba:** BPC £3-00 kg spot, **Peru:** nominal, **Tolu:** BP £3-20 spot; £3-10 cif.  
**Benzoïn:** BPC £65-£66 cwt spot; £63-£65, cif.  
**Belladonna:** (metric ton) leaves £320 spot; £315 cf. Herb £280; no cif. Root, £490 spot; £480, cif.  
**Buchu:** Spot £2-60 kg nominal; new crop £3-00 cif.  
**Cardamoms:** (per lb cif) Alleppy greens No. 1 £1-45; prime seeds £1-50.  
**Cascara:** Spot £30 metric ton; shipment £610, cif, both nominal.  
**Cassia:** lignea, broken £1,280 metric ton, cif.  
**Cherry bark:** Spot £550 metric ton, £530, cif.  
**Chillies:** Uganda £700 ton, cif.  
**Cinnamon bark:** Seychelles Unquoted.  
**Cinnamon quills:** four O's £0-46 lb.  
**Cloves:** (Per ton, cif); Ceylon £2,500; Madagascar £2,400; Zanzibar £2,700.  
**Cocillana:** Spot £700 metric ton.  
**Colocynthis pulp:** Spot £720 metric ton.  
**Dandelion:** No spot; shipment nominal.  
**Gentian:** Root nominal £1-25 kg, cif.  
**Ginger:** (ton) Cochin £440, cif, Sierra Leone £675, cif. Nigerian split £475, cif; peeled £700, cif.  
**Gums:** Acacia nominal. Karaya No. 2 fag £25-50 cwt. Tragacanth No. 3 £1,680 per 1,000 kg.  
**Henbane:** Niger £1,100 metric ton, spot and cif.  
**Hydrastis:** £6-60 kg spot; £9-45, cif.  
**Honey:** (per ton in 6-cwt drums ex-warehouse) Australian light amber £635, medium £625, Canadian £675, Mexican £550 (all approximate).  
**Ipecacuanha:** (kg) Costa Rican £3-45 spot; £3-10, cif. Matto Grosso £6-30 spot. Colombian £5-25; £5-10, cif.  
**Kola nuts:** W. African £135 metric ton, £115, cif.  
**Lanolin:** Anhydrous BP minimum 1,000 kg £430 to £500 as to grade.  
**Lemon peel:** £730 metric ton spot; £710, cif.  
**Liquorice root:** (metric ton) Chinese and Russian, £150 metric ton nominal.  
**Lobelia:** European £1-10 kg, cif; American, coarse powder, £470 metric ton.  
**Lycopodium:** Indian £4-75 kg. Canadian £5-50 kg.  
**Mace:** Grenada No. 1 £2,576 long ton fob.  
**Nutmeg:** (ton, cif) East Indian 80's £1,455; 110's £1,375; bwp £1,300. Grenada not offering.  
**Nux vomica:** £135 metric ton spot; £110, cif.  
**Quillaia:** £1,200 metric ton spot.  
**Rhubarb:** Chinese rounds £1-45 kg for 60 per cent pinky.  
**Saffron:** Mancha superior £88 lb.  
**Sarsaparilla:** Spot £1-15 kg. £1-08, cif.  
**Senega:** Canadian £5-20 kg spot.  
**Senna:** (per kg) Alexandrian h/p pods cleared; manufacturing nominal. Tinnevely h/p pods nominal; Alexandrian leaves £0-19 lb.  
**Squill:** White unobtainable.  
**Tonquin beans:** Spot £1-30 kg nominal.  
**Turmeric:** Madras finger £300 ton, cif.  
**Valerian:** (metric ton) Indian and Continental nominal.

## Essential oils

Anise: £27.00 kg spot, £25.00 cif.  
Citronella: Ceylon £3.45 kg spot and cif.  
Clove: Madagascar leaf spot £4.00, shipment  
£3.75 kg, cif.  
Eucalyptus: Chinese £7.00 kg, cif, 80-85 per cent.  
Spanish £6.30.  
Geranium: (kg) Bourbon £22.00 kg.  
Palmarosa: £11.00 kg spot and cif.  
Peppermint: (kg) Arvensis-Brazilian spot and  
shipment £8.40 kg, cif. Chinese £9.25 spot; ship-  
ment £10.30, cif. Piperata American from £19.00.  
Sandalwood: Mysore £90.00 kg spot.  
The prices given are those obtained by Importers  
or manufacturers for bulk quantities and do not  
include value added tax. They represent the last  
quoted or accepted prices as we go to press but  
it should be noted that in the present state of  
the markets quotations change frequently.

## Coming events

**Monday, April 8**

**Brighton and Hove Branch, Pharmaceutical Society**, Langfords Hotel, at 8 pm. Annual meeting.

**East Metropolitan Branch, Pharmaceutical Society**, King George V Hospital, Eastern Avenue, Ilford, at 8 pm. Annual meeting and cheese and wine party.

**Plymouth Branch, Pharmaceutical Society**, board room, Greenbank Hoapital, at 8 pm. Annual meeting.

**Stockport Branch, Pharmaceutical Society**, ICI Pharmaceutical division, Alderley Park, at 8 pm. Professor A. Beckett on 'Biological availability'.

**Tuesday, April 9**

**Ayrshire Branch, Pharmaceutical Society.** Savoy Park Hotel, Ayr, at 8 pm. Annual meeting.

**Doncaster Branch, Pharmaceutical Society.** Rockingham Arms Hotel, at 8 pm. General meeting.

**File Branch, Pharmaceutical Society,** Ollerton Hotel, Kirkcaldy, at 7.30 pm. General meeting.

**Galen Group, Pharmaceutical Society,** Friend's Meeting House, Park Lane, Croydon, at 8 pm. Illustrated talk by Mr. R. C. Chatman on "Canals".

**Oxfordshire Branch, Pharmaceutical Society,** Oxford Motel, at 7.30 pm. General meeting.

**South East Metropolitan Branch, Pharmaceutical Society,** Medical centre, Lewisham Hospital, London SE13, at 8 pm. Mr J. A. Osborne BDS on "Paedodontics".

**Southampton Branch, Pharmaceutical Society,** Room 51, south block, Postgraduate centre, Southampton General Hospital. Annual meeting.

**Wednesday, April 10**

**West Metropolitan Branch, Pharmaceutical Society,** Great Western Royal Hotel, Paddington Station, London W2, at 7 pm. Talk on "Can justice miscarry?" by a member of staff of the department of forensic medicine, London Hospital Medical College.

**Thursday, April 11**

**Durham Branch, Pharmaceutical Society,**  
Redhills Hotel, Nevilles Cross, Durham, at 8 pm.  
Annual meeting.

**Leeds Branch, Pharmaceutical Society,** Great  
Wellesley Hotel, at 8 pm. Annual meeting.

**Northumbrian Branch, Pharmaceutical  
Society,** Winthrop Laboratories. Annual meeting.

**Swindon Branch, Pharmaceutical Society,**  
Blunsdon House Hotel, Blunsdon, at 8 pm. Dr May  
on "Experiences in life of a borough medical  
officer".

### Advance information

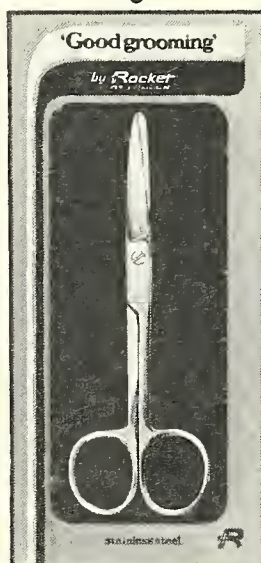
**Chemical Society.** Review symposia on "Recent advances in NMR spectroscopy", July 8-10; "Recent advances in vibrational spectroscopy", July 11-12, University of East Anglia. Courses on "Binding processes involving biopolymers", September 2-6, Wye College, Kent; "Management studies for chemists", October 14-18, Urwick Management Centre, Slough, Bucks. Details from Dr M. D. Robinson, Chemical Society, Burlington House, London W1V 0BN.

**Society for cryobiology**, 11th annual meeting, Royal Lancaster Hotel, London, August 4-8 (fee £27.50 before July 15). Details from the local committee, Division of Cryobiology, Clinical Research Centre, Watford Road, Harrow HA1 3UJ.



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---	--

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##### SENIOR PHARMACISTS

HM Prison Parkhurst Road Holloway London, N7	HM Prison Wormwood Scrubbs Du Cane Road London, W12
---	--

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Intending applicants may obtain further information from the Head Pharmacist: HM Prison, Parkhurst, Isle of Wight (Telephone: 098-381 3855).

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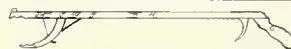
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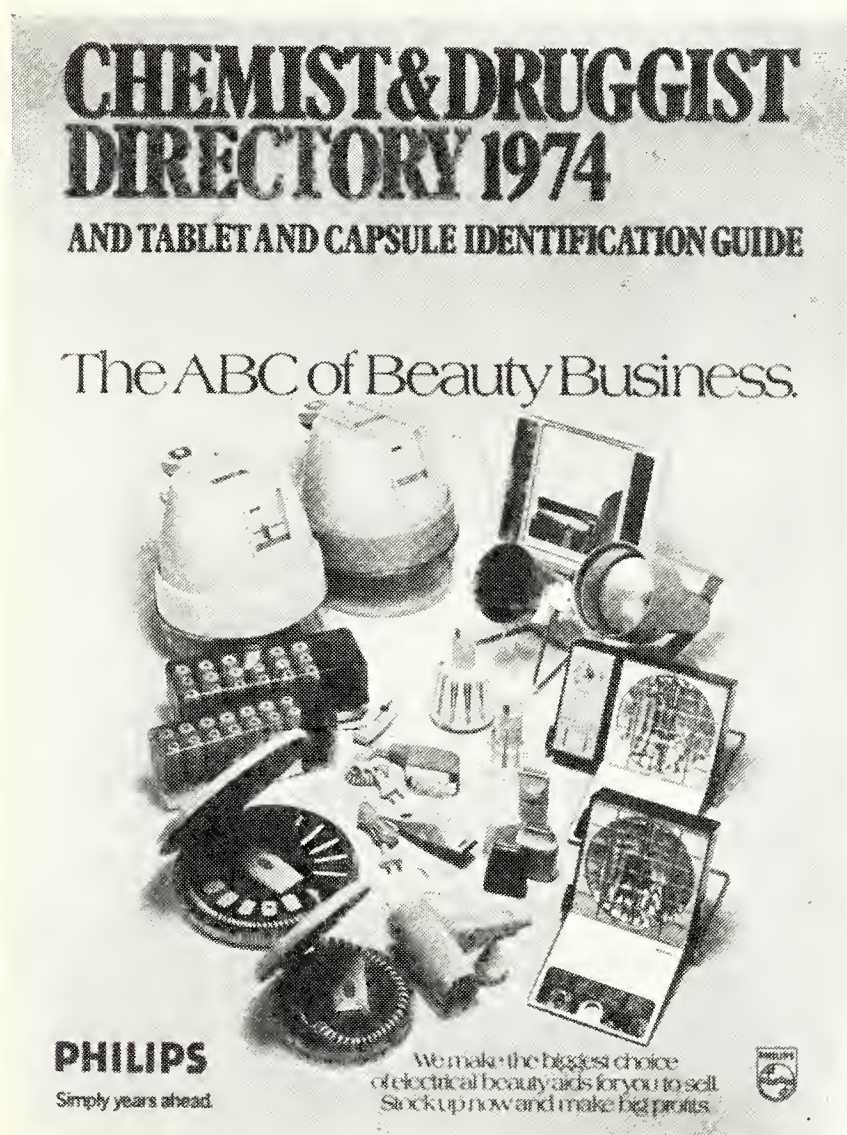
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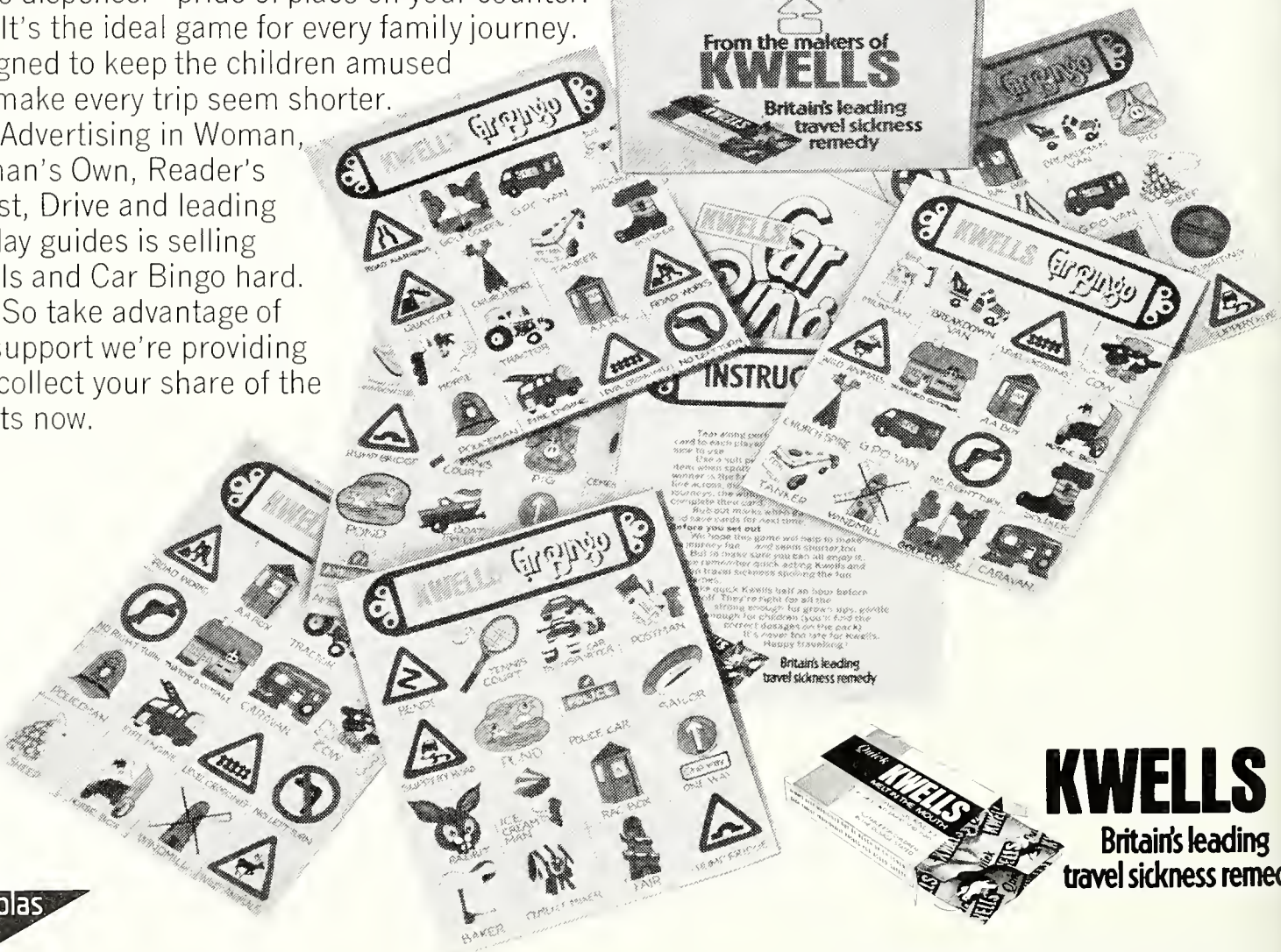


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